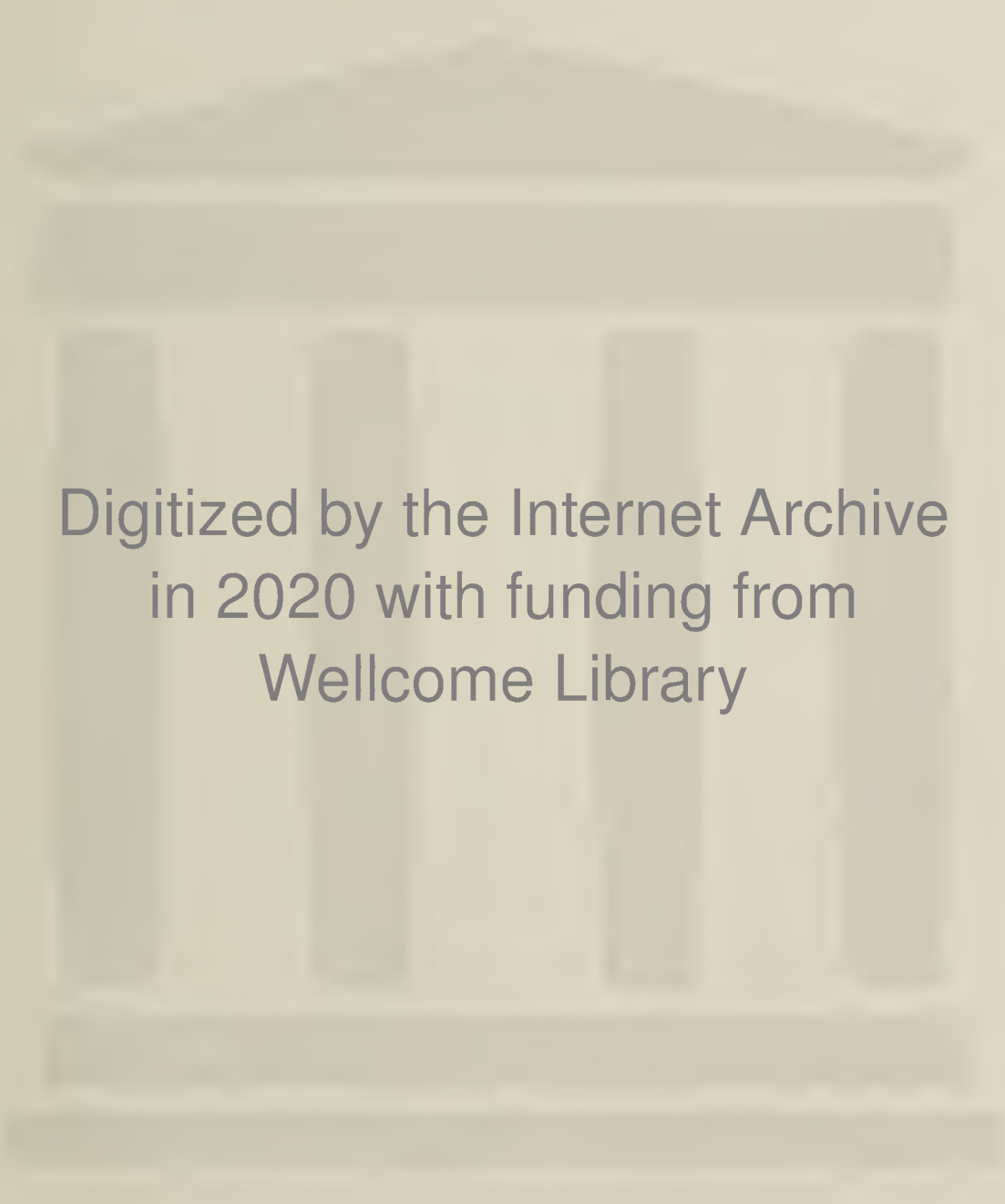


WES/2



Digitized by the Internet Archive
in 2020 with funding from
Wellcome Library

<https://archive.org/details/s2id13659710>



THE
WESTERN JOURNAL

OF

MEDICINE AND SURGERY:

EDITED BY

DANIEL DRAKE, M.D.,

AND

LUNSFORD P. YANDELL, M.D.,

PROFESSORS IN THE LOUISVILLE MEDICAL INSTITUTE,

AND

THOMAS W. COLESCOTT, M.D.

VOL. VII.

LOUISVILLE, KY.

PUBLISHED MONTHLY BY PRENTICE & WEISSINGER,

PROPRIETORS AND PRINTERS,

1843.

CW

THIS BOOK IS NO LONGER
THE PROPERTY OF
JOHN





THE
WESTERN JOURNAL
OF
MEDICINE AND SURGERY.

JANUARY, 1843.

ART. I.—*An Experimental and Critical Inquiry into the Nature and Treatment of Wounds of the Intestines.* By SAMUEL D. GROSS, M. D., Professor of Surgery in the Louisville Medical Institute.

A monograph on wounds of the intestines has been an acknowledged desideratum with the profession. The work of Mr. Travers, the only production of the kind in the English language, has been out of print nearly a quarter of a century, and hence the only information accessible to practitioners, especially those of the United States, is such as is to be found in the various periodicals of the day, or in our systematic treatises on surgery. The latter, unfortunately, contain little, if any thing, that is worthy of reliance; they enter into no details, and some of them do not even allude to the subject; a circumstance so much the more surprising when we reflect upon the importance of these injuries, and the attention which has been bestowed upon them by some of the most respectable members of the profession. In the present undertaking an attempt has been made to supply this deficiency, by exhibiting a connected view of the subject, embracing an

account of the results of my own researches, and of those who have preceded me in the same field of inquiry.

My investigations were commenced in the spring of 1841, and continued, with various intermissions, until a few months ago. The object was, in the first place, to inquire into the process employed by nature in repairing wounds of the intestinal tube; and secondly, and more particularly, to determine, if possible, the value of the various methods of treatment that have been recommended from the time of Ramdohr down to the present day. The experiments, upwards of seventy in number, were performed exclusively on the dog, as the most eligible animal that could be procured for the purpose, with the assistance of my private pupils, Messrs. Wendel, Comstock, Baker, Shumard, Church, Grant and Williams. Many of them were also witnessed by Mr., now Dr. Hagan, by Dr. Colescott, one of the Editors of the *Western Journal of Medicine and Surgery*, by Mr. Mullen, and by Dr. Richard Ferguson, of this city. To the latter gentleman, who has kindly furnished most of the accompanying drawings, I am desirous thus publicly to tender my acknowledgments.

It is proper to state that an abstract of this essay was read before the Medical Convention of Ohio, at its last meeting at Cincinnati, in May 1842.

The notions of the older writers respecting the nature and treatment of wounds of the intestines were, for the most part, exceedingly crude and erroneous. Neglecting to institute experiments for their successful elucidation, they contented themselves with such facts as they witnessed in the human subject; and as these were not only few, but generally imperfectly noted, the conclusions which they deduced from them were far from throwing any real and substantial light upon this interesting branch of pathology. Indeed, until the publication of the researches of Mr. Travers, of London, early in the present century, the management of wounds and injuries of the alimentary tube was altogether empirical, being regulated rather by accident than sound principles derived from the study of healthy and morbid action. His labors in this department, conducted as they were at an early period of his professional life, evinced no ordinary judgment and talent, and served as a happy presage of the reputation which has since awaited him. They are comprised in an octavo volume of nearly four hundred pages, including a complete summary of all that was known on the subject at the time at

9-28802

which it appeared in 1812. It is entitled: "*An Inquiry into the Process of Nature in Repairing Injuries of the Intestines; Illustrating the Treatment of Penetrating wounds and Strangulated Hernia;*" and is one of the most able and philosophical productions that have enriched the science of surgery within the last fifty years, so prolific in discovery and improvement.

In the investigations just referred to, Mr. Travers did not, like his predecessors, limit his inquiries to the human subject, but extended them to the inferior animals, upon which, especially the dog, he performed a series of the most interesting experiments, equal in point of beauty and importance to those instituted by his countryman, Dr. Jones, to ascertain the process employed by nature in suppressing hemorrhage from divided arteries. The results of these researches are well-known to the profession, and any further notice of them, excepting in an incidental manner, will therefore be unnecessary in a work of this kind, which is intended more particularly as a record of my own observations and of the facts that have been disclosed within the last quarter of a century. It is but just to say that several years before Mr. Travers issued his work, Dr. Thomas Smith, of the Island of St. Croix, was engaged in making some researches on the same subject, an account of which was published in his Inaugural Dissertation, presented to the Trustees and Faculty of the University of Pennsylvania, in 1805. His object seems to have been rather to inquire into the propriety of using certain kinds of sutures, recommended by Le Dran, Ramdohr, John Bell, and other surgeons, than to ascertain the process employed by nature in effecting reparation. His experiments, twelve in number, were conducted with considerable care, though he has failed, in almost every instance, to notice with proper minuteness the results of his dissections; a circumstance so much the less surprising when we reflect upon the low state of pathological science at the period at which he wrote. Limited as these researches are, and imperfectly as they have been detailed by their author, they

nevertheless tended to establish some important practical precepts, to which allusion will be made in another part of this inquiry.

Before I proceed to detail the results of my own experiments, and the inferences which I have been led to deduce from them, it will not be amiss to make some remarks on the structure of the alimentary tube, the arrangement of the peritoneal cavity, and the phenomena which characterize the presence of wounds in the situation in question.

I.—*Structure of the Alimentary Canal.*

Into the consideration of the structure of the intestinal canal I do not deem it necessary to enter at any length, as it must be familiar to all who have any pretensions to correct anatomical knowledge. It will be sufficient for the object I have in view to make a few remarks respecting the different tunics, and the manner in which they are united to each other.

The *outer membrane* of the intestinal tube belongs to the class of serous textures, and deserves to be mentioned here chiefly on account of the facility with which it takes on inflammation, and the important part it plays in the reparation of traumatic lesions. It is intimately connected, except along the line of reflection of the mesentery and omentum, to the subjacent muscular tunic, by short, dense cellular substance, and consists every where of a single lamella, the strength of which varies in proportion to the age of the individual. In young animals it is easily lacerated, and incapable of withstanding much traction or pressure. Hence, if, in sewing up a wounded bowel, the ligature be carried merely through the serous investment, it will be almost certain to be torn out in the efforts which are necessary to replace the part within the abdomen. When inflamed, this tunic promptly pours out plastic lymph, which, under favorable circumstances, becomes readily organized. If the morbid action runs high, the lymph is generally intermixed with serum, and sometimes even with blood. Pus is a more common attendant on

the chronic form of the disease; it is, however, occasionally observed in the acute stage, and that, too, within a very short time after the development of the disorder.

The *muscular tunic*, interposed between the preceding and the cellulo-fibrous, to both of which it is intimately connected, is composed of two planes of fibres, a superficial and deep-seated. The first, which is much the more delicate of the two, is made up of thin, pale fibres, which are arranged longitudinally, and which exhibit certain, but as far as the present inquiry is concerned, unimportant peculiarities in different parts of the tube. The second layer consists of circular fibres, much more distinctly marked than the preceding, which extend in parallel lines round the entire circumference of the bowel, their extremities being inserted as it were into each other.

Lying beneath this muscular plane is the celebrated *nervous tunic*, as it was called by the ancient writers. Alternately admitted by some and rejected by others, this layer has been recently described by Mons. Cruveilhier,* under the name of the *fibrous lamella*, in consideration of its structure, which closely assimilates itself to that class of tissues. It is intimately connected, on the one hand, with the mucous membrane, and, on the other, with the muscular tunic, into the latter of which it sends a large number of processes, of a dense, firm character, which thus tend to strengthen the union between them. In its thickness and consistence it varies in different portions of the canal, being at its minimum in the ileum and colon, and at its maximum in the remainder of the small and large bowels. Strong and resisting, it is semi-transparent, devoid of elasticity, and composed of condensed cellular tissue, in which it is impossible to distinguish any of that linear disposition so conspicuous in the fibrous membranes, properly so called. The filaments of which it consists interlace with each other in every conceivable manner, forming thus a very close net-work, which it is difficult to unravel by

*Anatomie Descriptive, T. ii, p. 470.

insufflation and other artificial processes. In great obesity small particles of fat are occasionally to be seen in its meshes, which always disappear in emaciation, however induced. In chronic affections, especially in such as are of a malignant nature, this tunic is often remarkably altered in its structure, being rendered much thicker than in the normal state, at the same time that it assumes a dense and almost gristly hardness. It readily re-unites when divided, as I have witnessed in numerous experiments, and deserves to be attentively studied, as it is the membrane through which the surgeon should always carry his needle in sewing up wounds of the intestines.

This tunic—for so indeed it should be considered—is much more distinct in carnivorous animals than in herbivorous, or than in the human subject. In the small bowel of the African lion it is an exceedingly firm, dense, and elastic texture, of a white opaque aspect, capable of great resistance, and nearly half a line in thickness. In the bear its characters are nearly similar. In the dog it is less strong, and also less distinctly fibrous, yet more so, considerably, than in the human subject. In the horse it forms a thick inelastic layer, of a dull greyish color, which frequently contains a good deal of adeps. In the ox its properties are very much of the same nature.

The *internal membrane*, of a mucous character, varies in thickness and consistence, as well as in the mode of its arrangement, in different parts of the tube, and does not require any particular notice in relation to the subject under consideration. It is sufficient to observe that it is highly vascular and sensitive; that it re-unites with great difficulty, comparatively speaking, when divided; and that, although extremely prone to inflammation, it rarely, when thus affected, deposits plastic lymph, the constant and invariable product of peritonitis.

II.—*Nature and Extent of the Peritoneal Cavity.*

Is there any cavity, properly so called, in the peritoneal sac, and, if so, what is its extent or capacity? Concerning this question various views have been expressed by anatomists and surgeons, and it is important, therefore, that it should be carefully examined before we pass an opinion on it, either affirmatively or negatively, as our decision, whatever it may be, must be calculated to exert no inconsiderable influence upon the treatment of traumatic lesions of the alimentary canal. Mr. John Bell, in his *Principles of Surgery*,* affirms that, “there is not, truly, any cavity in the human body, but that all the hollow bowels are filled with their contents—all the cavities with their hollow bowels—and that the whole are equally and fairly pressed.” That this is really so every one will admit; but when he declares, as he does almost in the same sentence, that all the viscera of the abdomen may be deeply wounded, and yet no blood or fæces can escape, he makes an assertion which is unsustained by facts, and which daily observations on the human subject, as well as experiments upon the inferior animals, wholly disprove. Examples of fæcal effusion, either alone or in combination with blood, are mentioned by a great number of pathologists, by Hoyerus, Ravaton, and Morgagni, of the last century; by Cooper, Travers, and others, of the present. Indeed, there is literally no end to cases of this description—a volume would scarcely suffice to record them all; for there is hardly a physician, at all extensively engaged in practice, who has not met with them. A few years ago I assisted my colleague, Professor Cobb, in examining the body of a stout, athletic man, who had been stabbed in the abdomen, apparently with a dirk, which had entered near the umbilicus, and perforated the jëjunum, laying open that tube in an oblique direction to the extent of nearly half an inch. Through this

*Vol. i, p. 487. London, 1827.

aperture a small quantity of stercoraceous matter had made its way into the peritoneal sac, where it induced violent inflammation, of which the patient died in less than two days.

Moreover, certain pathological facts clearly show the fallacy of the above opinion. In ulceration of the bowels the morbid action occasionally extends to the serous investment, which it at length perforates, leading thus to a discharge of fæcal matter. Of this not less than five or six well-marked cases have fallen under my own observation, and numerous others of a similar kind are narrated by authors. This occurrence must, in fact, inevitably happen whenever nature fails to effect adhesion in the surrounding parts, however slight the opening. In several of my cases the aperture did not exceed two lines, or the sixth of an inch in diameter, and in some of those that have come under the notice of other observers, it was still smaller, scarcely equalling the size of a crow-quill. Additional facts have been furnished by Smith and Travers, in their experiments on dogs. My own researches have afforded the following results.

Having opened the cavity of the abdomen of a small slut, a transverse wound, half an inch long, was made into the jejunum, and the part returned without suture. The animal became sick soon after the operation, and evinced a disinclination to move about. In thirty-two hours she died. The aperture in the bowel was perfectly patulous, with the mucous coat everted, of an oval form, and without the slightest attempt at reparation or adhesion to the circumjacent structures. About six ounces of a dirty yellowish looking fluid, evidently of a fæculent nature, were contained in the peritoneal sac; and there was extensive inflammation of the omentum, together with the serous coat of the bowels, several coils of which adhered with tolerable firmness to each other.

In another experiment, the subject of which was a small dog, and in which the incision was of the same extent and direction, the results were of a similar character. The animal became sick shortly after the operation, and continued

in that condition for thirty-six hours, when he died. On dissection, the edges of the wound were found to be in a gaping state, without any apparent effort at restoration; some hardened and fluid fæces had escaped into the abdominal cavity; the bowel was red and contracted for several inches above and below the affected part; and the neighboring knuckles of intestine were agglutinated by plastic lymph.

In a third experiment, in which the wound was only four lines, or the third of an inch in length, and in which the bowel was replaced without suture, recovery occurred without any untoward symptoms, and without any apparent inconvenience to the animal.

Oblique wounds, six lines long, and treated without suture, were followed by the same result as transverse wounds of the same extent. Only two experiments were performed to elucidate this point. The particulars it is unnecessary to detail. It will suffice to say that, in one of the dogs, death took place in thirty-six, in the other, in forty-seven hours, from peritoneal inflammation, occasioned by the effusion of fæculent matter. The wounds in both were in a gaping, patulous state, without any evidence whatever of reparation by the adhesive process.

To ascertain whether a longitudinal wound, six lines long, would be attended with the same degree of danger, was the object of the next experiment. For this purpose a healthy, full grown dog, of moderate size, was selected. Soon after the operation he vomited, and appeared to be in great agony; in thirty-six hours he died. On opening the belly, a considerable quantity of gas, of a highly offensive odor, escaped with a loud noise. Both hardened and fluid fæces were contained in the peritoneal sac, the enteric portion of which, especially in the immediate vicinity of the wound, exhibited marks of violent inflammation. The edges of the wound were separated to the extent of at least two lines, and through the opening thus formed the mucous membrane projected beyond the level of the serous covering. No attempt had been made to re-es-

tablish the continuity of the tube by adhesions of the gut to the surrounding parts.

In a second experiment, in which the wound was only four lines long, speedy recovery followed. The dog was a good deal indisposed for the first forty-eight hours, after which he became well and lively, and continued thus until he was killed on the fifteenth day after the operation. A process of omentum occupied the outer wound, which was nearly healed, the small bowels were extensively matted together, and the reparation of the enteric breach had evidently been effected by the adhesion of its edges to the two neighboring coils of intestine. The bottom of the wound was nearly two lines in width at its middle, and imperfectly filled with lymph.

A large dog, killed nine days after having been stabbed with the sword of a cane, two lines in diameter, presented the following appearances: two punctures, distant about five inches from each other, were found in the small bowel; the edges of each were in close contact, and their outer surface was completely covered with plastic lymph, which was quite firm, slightly ecchymosed, and vascular. The animal retained his original embonpoint, and did not appear to have suffered materially from the injury which had been inflicted upon him.

From the foregoing observations and experiments, the following conclusions may be established:

First—that, although there is not, in the true sense of the term, any peritoneal cavity, yet the arrangement existing between it and the enclosed viscera is of such a nature as to admit, and that very frequently, too, with great readiness, the effusion of stercoraceous matter in wounds and ulcerative perforation of the bowels.

Secondly—that wounds of the bowels to the extent of six lines, whether transverse, oblique, or longitudinal, are almost always, if not invariably, followed by the escape of faecal matter, and the consequent development of fatal peritonitis.

Thirdly—that wounds not exceeding four lines in length, no matter what may be their direction, are not near so apt, if

left to themselves, to be succeeded by the extravasation of the contents of the intestinal tube; and that, in the majority of cases, nature, properly aided by art, is fully competent to effect reparation.

These deductions derive additional support from the following experiments, instituted with a view to ascertain the effects of wounds and punctures of different forms and dimensions: 1. A longitudinal incision, two lines and a half in length, immediately contracted to one line and three-quarters, with a sufficient amount of eversion of the mucous lining to close the resultant orifice. 2. A similar wound, four lines long, diminished in a few seconds to three lines, by one line and a half in width; it assumed an oval shape, and the internal membrane protruded on a level with the peritoneal covering, leaving no perceptible aperture. 3. An oblique cut, seven lines in length, contracted to five, by two and a half in width, with marked eversion of the mucous lining. 4. A transverse wound, two lines and a half long, was reduced almost instantaneously to two lines in diameter: it was of a rounded form, and the two outer tunics of the gut retracted so as to expose the mucous membrane. 5. In another experiment, in which the incision, likewise transverse, was half an inch in extent, the orifice assumed a rounded, oval shape, and was reduced to four lines, by two and a half in width, the internal coat exhibiting, as in the other cases, a pouting, or everted arrangement.

These observations are interesting chiefly as showing the efforts which nature institutes to close a breach of this kind, the very moment almost it is inflicted. It is doubtless by a process of this description that the effusion of stercoraceous matter into the peritoneal sac is so generally prevented in those cases in which the solution of continuity is of small extent, not exceeding, for example, a few lines in diameter, and where, consequently, it amounts rather to a puncture than a wound. The eversion of the lining membrane forms a striking and constant feature in injuries of this character,

and may be compared, in its effects, to the contraction and retraction observed in the extremities of a divided artery.

It is a circumstance in the highest degree interesting, and worthy of notice, that the eversion of the lining membrane, which is so conspicuous in traumatic lesions of the alimentary tube, is never witnessed in the openings which result from ulcerative action. In the latter, the perforation proceeds in a slow and gradual manner, at the expense mainly of the mucous and fibrous lamellæ, which are always destroyed to a much larger extent than either the muscular or peritoneal. Hence, by the time the ulcer reaches the surface, it is impossible for the lining membrane to protrude across it, as it does when the bowel is wounded by a sharp instrument, a blow, or a kick. Another circumstance which no doubt contributes to produce this result, is the indurated condition of the serous and muscular layers immediately around the perforation, caused by the deposition of lymph during the progress of the ulcerative action.

There is thus a striking difference, as respects their immediate effects, between an opening of the bowel from ulceration and one produced by an incised or lacerated wound. In the former, although it may not be two lines in diameter, extravasation would be almost certain; in the latter, it might be nearly double that size, and yet, for the reason just mentioned, that event, so much to be dreaded, would be little likely to occur.

It is much to be regretted that Mr. Travers, in the experiments which he instituted to illustrate this branch of the subject, as well as in the cases which he has adduced from his own and the practice of others, has not specified the size of the lesion; a matter of such paramount importance that it is only surprising how it could have been overlooked. His chief object, however, appears to have been, not so much to deduce from them any practical precept in reference to the management of such accidents, as to show that the apprehension of intestinal effusion in penetrating wounds of the abdomen, is,

in the majority of cases, without foundation. How far he has succeeded in accomplishing this end, I leave it to others to determine.

III.—*Symptoms, Diagnosis, and Prognosis.*

The next topic into which I proposed to inquire is the consideration of the symptoms of wounds of the intestines. A few remarks under this head will be sufficient for the object in view.

The symptoms of a wounded bowel necessarily divide themselves into two classes, into those, namely, which are furnished by the system at large, and those which are peculiar to the part more directly and immediately implicated. In regard to the first, they are such, generally, as denote a severe shock of the nervous system, but as they are common to this and other injuries, they are of little consequence in enabling us to make out the diagnosis. In almost all instances there is nausea, either alone, or accompanied with vomiting; these symptoms often make their appearance within a few minutes after the infliction of the wound, and continue with great obstinacy for several successive days, or, in fatal cases, until death relieves the patient of his suffering. They are commonly more violent and distressing in lesions of the small than of the large bowel, owing to the more delicate organization of the former than of the latter, and to its more intimate connexion with the stomach and the sympathetic nerves. The prostration of the vital powers is not always in proportion to the extent of the wound, or the danger of the case. Some persons, it is well-known, suffer much more severely from a slight than others do from a violent injury, for reasons which cannot always be explained, but which may be supposed, generally, to be dependent upon some constitutional peculiarity. Reaction is often postponed for ten or fifteen hours after the occurrence of the accident, and until it is fairly established there is sometimes a constant tendency to syncope, with an alarmed and agitated state of the mind,

which it is almost impossible to calm or subdue. The countenance under such circumstances has a pale, anxious, and haggard expression; the pulse is small, frequent, and tremulous; the skin is bathed with clammy perspiration; the extremities are cold; the patient tosses about in his bed; the thirst is urgent, as is also the desire for cool air; there are griping pains in the abdomen; and occasionally the discharges from the bowels are involuntary. Conjoined with these symptoms there is sometimes slight delirium with partial blindness or indistinctness of vision.

The *local symptoms* of a wounded intestine are often as equivocal as those which are furnished by the constitution. This must, indeed, always be the case when there is no protrusion of the tube, or when the external opening is so small, or its direction and situation are such, as to prevent effectually the escape of fæces or other matters. It not unfrequently happens that an instrument enters the abdomen, and passes out at the opposite side, directly in the course of the bowels, without in any wise interfering with them. Many interesting and instructive cases of this kind are recorded by writers on military surgery, as well as by civil practitioners, and several will be quoted hereafter in illustration of this part of the subject. The most characteristic signs of this lesion are, unquestionably, the escape of fæces, bile, food or fœtid air from the external wound, and the sudden development of tympanites. The latter symptom, which does not appear to have been sufficiently insisted upon by systematic writers, as very few, if any, mention it, is often present when the others are absent, and may therefore be regarded as in some degree pathognomonic. Jobert thinks it is the most valuable and positive sign of a wound of the intestine that we can have when there is no external opening, or only so small a one as not to permit the egress of stercoraceous or other substances. He relates several instances from his own practice and that of others, in which, by this phenomenon alone, the diagnosis was clearly established. The tympanites supervenes at various periods, from a few minutes to several hours, after the

occurrence of the accident, and is always attended with a hollow, drumlike sound on percussion, with tenderness on pressure, and difficulty of respiration. The following cases will more fully explain the nature and importance of this symptom.

A young man, eighteen years of age, of an excellent constitution, an apprentice in a drug-store, in a rencounter with a robber, in May, 1842, was stabbed with a knife in the right side of the abdomen, the instrument entering the anterior wall of the ascending portion of the colon in a transverse direction, and about two inches above the ileo-cæcal valve. The outer wound was fifteen lines in length, and the inner was sufficiently large to allow the escape of a considerable quantity of fæcal matter. A short time after the occurrence of the accident there was diffuse pain of the abdomen, with a discharge of blood from the anus, and at the end of twenty-four hours decided tympanites. The distention progressively augmented for four days, when it had attained an enormous height. From this period it slowly subsided, but did not entirely disappear under a month. Pressure on the abdomen during the first week occasioned the most exquisite pain. The patient finally recovered under the judicious management of Dr. E. S. Williams and Professor Mussey, of Cincinnati, where the case occurred, and where, through the politeness of those gentlemen, an opportunity was afforded me of seeing it, during a visit which I made to that city last summer.

A carriage-driver, sixty years of age, was kicked by a horse upon an old rupture in the left groin, for which he was carried to the St. Louis hospital of Paris. The following morning he had great pain in the belly, especially on pressure, and the swelling, which was very large and emitted a peculiar gurgling noise, was tympanitic. He died the next day under all the symptoms of gangrene or rupture of the intestine. The scrotum, hernia, and belly, were all distended with gas, which could be readily forced from one to the other; the intestinal folds were agglutinated by plastic lymph; black matter was

effused into the pelvic and abdominal cavities; and the small bowel was entirely torn across.*

A young man, twenty-one years of age, was thrown from his carriage, the wheel of which passed over his belly. When brought to the St. Louis hospital, immediately after the accident, the skin of the abdomen was found to be perfectly natural, but he complained of great pain, and there was enormous tympanites, the parts on percussion sounding like a drum. His sufferings for eight days were very violent, after which they gradually subsided, and he was rapidly convalescing from his injury, when, at the end of a month, an unexpected attack of pleuro-pneumonitis occurred, which quickly destroyed him. The jejunum adhered to the last false rib, and presented the remains of an opening, which had been completely closed by a sort of plug of the omentum.†

A man affected with cancer of the rectum was admitted into the surgical ward of the St. Louis Hospital under the care of Mons. Richerand. The abdomen became suddenly tympanitic, and this distinguished surgeon at once pronounced the case to be one of intestinal perforation. The autopsy justified the diagnosis. The bowel was found to have given way above the seat of the disease, and thus permitted the escape of the gas upon which the distention depended.‡ Examples of a similar character are recorded by Scarpa, Sévestre, Kapeler, Marjolin, and other writers.

Tympanites, however, does not attend all traumatic injuries of the intestinal canal. When the opening is very small, amounting rather to a puncture than a wound, the escape of gas will either be entirely prevented, or occur only in a small degree, owing to the protrusion of the mucous membrane, which, as was seen in a previous part of this essay, is a constant phenomenon in lesions of this description. A sort of valve

*Jobert, *Maladies du Canal Intestinal*, T. i, p. 61.

†Jobert, *op. cit.* T. i, p. 62.

‡Jobert, *op. cit.* T. i, p. 63.

is thus formed, which opposes an effectual barrier to the egress of fæcal matter, intestinal secretions, and even air.

A discharge of blood from the anus is another symptom which, in connexion with some of those already pointed out, is of considerable importance in the discrimination of the lesion before us. Still, as it may, and often does attend other injuries, it cannot be regarded as at all characteristic. The quantity of blood evacuated occasionally amounts to many ounces. In the case previously adverted to, which I saw along with Professor Mussey and Dr. Williams, at least two pints of fluid and grumous blood were discharged during the first three days. It began to pass off seven hours after the occurrence of the injury, nearly unmixed with fæces, and comparatively fresh in its appearance. What was subsequently evacuated was of a darker color, and more firmly coagulated, as if it had been retained for sometime in the bowel.

Equally equivocal is hematemesis, or vomiting of blood which may be enumerated as another, though by no means constant symptom of traumatic lesion of the alimentary tube.

The degree of pain accompanying cases of this kind varies remarkably in different individuals, being very slight in some, and exceedingly severe in others. In most instances it is of a colicky character, though occasionally it is dull and aching, and it is almost constantly increased by pressure, by coughing, and by a full inspiration, especially if some hours have elapsed since the infliction of the injury.

The wound is occasionally complicated with hemorrhage into the peritoneal sac, caused by lesion of the epigastric or internal mammary artery, of some of the branches of the mesentery or omentum, of the aorta or vena cava or of some of their immediate offsets. Unless the abdominal wound be large, very little blood, if any, will appear externally, but it will flow into the serous cavity, where it will occupy the intervals between the intestinal convolutions, descend into the pelvis, or be extensively diffused among the viscera. The amount and rapidity of the effusion will vary in proportion to the size of the wound and the volume of the vessel con-

cerned. When the vessel is very large and the opening considerable, the hemorrhage may be instantly fatal, or death may ensue in a few hours. In cases of an opposite character the symptoms will be less urgent, and the patient probably suffer no inconvenience, save what results from the temporary debility and faintness. The blood will soon coagulate, and by the pressure which it exerts upon the orifice of the bleeding vessel, a mechanical obstacle will be opposed to its further effusion.

When the quantity of fluid poured out is considerable a tumor is sometimes formed, which may be easily detected by its prominence and hard feel. If the patient survive the immediate shock of the accident, he may die from inflammation, caused by the clotted blood acting as an extraneous substance. At other times the coagula are absorbed, or they become encysted by an exudation of plastic lymph.

In the *diagnosis* of a wounded bowel important information may frequently be obtained, in regard to the direction, extent, and depth of the lesion, by a careful consideration of the shape and size of the vulnerating body. When the outer opening is so large as to admit the finger, it will generally be easy to determine whether the injury reaches the cavity of the abdomen: probing with instruments is quite inadmissible; it can do no good, and may occasion much harm. It need hardly be observed that it is highly proper, in every inquiry of this kind, to place the patient as nearly as possible into the posture in which he was at the moment of the accident. When the wounded bowel protrudes at the external opening, the diagnosis is at once obvious, as the nature and extent of the injury may be determined by simple inspection. The lesion, in the absence of pathognomonic symptoms, ought to be suspected when nausea and vomiting occur after penetrating wounds of the abdomen, accompanied with griping pains, great debility and faintness, jactitation, extreme anxiety, and cold sweats. The case is plain enough when there is a discharge of the contents of the alimentary tube, or a sudden development of tympanites.

It not unfrequently happens that an instrument enters the abdomen, and passes out at the opposite side, without, in the slightest degree, interfering with the bowels or other viscera. Many interesting cases of the kind are related by writers. I select the following in illustration of the subject.

A young soldier received, in a duel, a thrust from a sabre on the anterior part of the abdomen, a little above and to the right of the umbilicus. The walls of the belly were divided, and a considerable mass of omentum protruded through the opening. The patient was removed to the hospital, where every attempt was made to reduce the prolapsed parts, but without success. Blood was freely abstracted from the arm, leeches, cups, and fomentations were applied to the abdomen, and perfect quietude was enjoined; in short, every thing was done to prevent peritoneal inflammation. Eight days after the reception of the injury the extruded omentum was cut off, after which the wound became covered with healthy granulations, and at the end of five weeks the man was nearly well.*

The following case, mentioned by Sir Astley Cooner,† is strikingly illustrative of the manner in which the intestines glide away from the edge of the instrument. He was called to a female whom he found lying on the floor, weltering in her blood, from the infliction of four wounds upon her throat, in an attempt to commit suicide. Having closed these with sutures, his attention was directed, by some incoherent remark which she made, to her abdomen, where he found the bowels exposed by a wound reaching nearly from the pubes to the ensiform cartilage of the sternum. After cutting her throat with a razor, she had ripped up her belly with it, and let out her bowels, which were still distended with air, and had not sustained the slightest injury.

Dr. Hennen states‡ that he was witness to the recovery of

*Medico-Chir. Review, vol. ix, p. 527.

†Op. cit., vol. ix, p. 528.

‡Principles of Military Surgery, p. 319. Phila., 1830.

a soldier who was shot through the body with a ramrod at the siege of Badajos, in 1812. The instrument entered the front of the abdomen, and actually stuck in one of the transverse processes of the vertebræ, from which it could not be disengaged without force. An analogous case is related by Dupuytren.*

A man in a fit of severe grief resolved to put an end to his existence, and for this purpose rushed with all his force against the point of a sword, which he had previously fastened in the wall of his apartment. So completely was the abdomen transfixed that the point of the weapon stuck out for eight or ten inches on the right side of the spine. When Dupuytren saw him, he seemed to suffer but little pain, and there was no symptom of any extravasation, or, indeed, of a wound of any of the abdominal viscera. It required considerable force to withdraw the sword. By repeated bleedings and the employment of a very rigid antiphlogistic regimen, the patient speedily recovered.

Richard Wiseman mentions the case of a young man who was run through with a rapier, which entered at the right hypochondriac region, and passed out at the back. On the the following day his skin was hot, and the pulse somewhat accelerated, but there was no tension of the abdomen, colic, vomiting, or any thing denoting injury of the intestine, or any other viscus, and he recovered in a very short time. "Thus," says Wisemen, "it frequently happeneth that a sword passeth through the body without wounding any considerable part.†" Two similar cases are recorded, one by Lamotte,‡ and the other by Garangeot, in each of which a sword passed directly across the cavity of the abdomen, without injuring a single fold of the intestinal tube.

Numerous instances of penetrating gunshot wounds of the

*Medico-Chir. Review, vol. xxi, p. 301.

†Chirurgical Treatises, 4to., p. 373. London, 1676;

‡Traite Complet de Chirurgie, T. ii.

abdomen are recorded, in which the bowels appear to have completely escaped injury. A case, which was evidently of this nature, is mentioned by Dr. John W. Richardson, of Tennessee, in the fourth volume of the *Western Journal of Medicine and Surgery*.* The ball, which weighed two drachms and a half, entered the abdomen on the right of the median line, and issued midway between the last rib and the sacro-iliac symphysis, immediately on the right side of the spine. There was no escape of gas or fæculent matter from the wound; some bloody urine was discharged soon after the infliction of the injury, and for the first eight or ten days there was considerable tension with soreness and swelling of the abdomen. The whole treatment was very simple, and the patient recovered in less than a month.

When the ball does not pass entirely through the body, it may be retained in the peritoneal cavity, or, if it wound the bowel, it may at once fall into the latter, and be discharged by stool. In the former case the foreign body excites adhesive inflammation, by which it becomes encysted; after it has remained in this condition, however, for a while it usually induces suppurative action, which gradually extends to the coats of the intestine, and finally produces perforation, whereby an outlet is established for its evacuation. When the extraneous substance is very small, as, for example, a shot, or even a small bullet, it occasionally continues encysted for many years, or even during the remainder of life, without occasioning any ill effects. An instance in which a number of encysted shot were found in the peritoneum recently occurred in the Louisville Marine Hospital, in an old man who had been wounded by a musket ten or twelve years previously. He soon recovered from the injury, to which he never referred any of his subsequent ailments.

I shall conclude this citation of authorities with the following extraordinary case recorded by Dr. Hennen, in his work

* This case is reported as having involved the colon and small intestines, without any evidence whatever that this was the fact.

on Military Surgery. A soldier of the Brunswick corps was wounded on the 16th of June, 1815, by a grape shot, which struck the right arm near the elbow, the articulation of which was destroyed. An English surgeon amputated the limb some hours after. The patient remained that night at Genappes. Next morning he observed blood flowing through the bandages, and requested Dr. Spangenberg, physician-in-chief to the Hanoverian army, to examine the arm. He found the humerus split as far as the joint, and with the consent of the patient immediately extracted it. After having dressed the parts, the man complained of pain in the abdomen, which was ascertained to proceed from a wound caused by a grape shot, which had passed through the exterior part of the belly, leaving two openings, one in front and the other behind, through each of which a portion of intestine protruded, not injured or inflamed, but in the natural state. The bowel, smeared with oil, was carefully reduced, and the two apertures were covered with adhesive plaster. The patient was brought to the hospital at Laecken, on the 19th of June, with moderate fever, and very little pain in the abdomen, or in the wound of the arm. The functions of the intestinal tube were not disturbed. He took little or no medicine; in four weeks the sores in the arm were cicatrized, and those of the abdomen, which were slightly affected with gangrene, in about three months.

The *prognosis* of wounds of the intestines must necessarily be influenced by a great variety of circumstances, such, particularly, as the extent of the mischief, the nature of the vulnerating body, and the state of the patient's health at the time of the accident. A small and simple lesion will be much more likely to turn out favorably than one involving a large surface, or one complicated with injury of some other organ, or the perforation of a large vessel. It is also less serious in an incised than in a contused or lacerated wound, and in a superficial than a deep one. Persons occasionally perish from the most trivial accidents of this kind, from the mere shock probably of the nervous system; they lie in a pale and ex-

hausted condition, and death takes place unpreceded by reaction. On the other hand, recovery sometimes occurs under circumstances apparently the most desperate and unpromising. No certain rule can, therefore, be laid down in respect to the prognosis of wounds of this description; which, however, must always be considered as severe accidents, likely to be followed by the worst consequences. Wounds of the large bowel were regarded by the ancient surgeons as less serious than those of the small; a view in which most modern authors seem to concur. The reason of this difference is, first, the more fixed condition of the lower portion of the tube; secondly, its more capacious calibre; and thirdly, the more solid nature of its contents. These circumstances may all be supposed to be favorable to the prevention of the effusion of fæcal matter. Extravasation will also be less apt to occur when the bowel is empty than when distended.

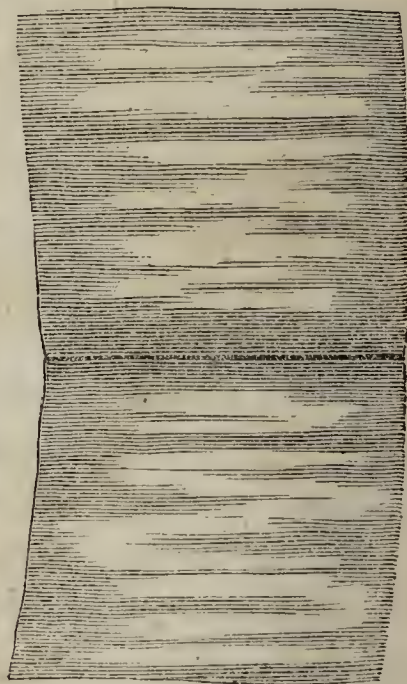
When the contents of the bowel are effused over the peritoneum, death is sure to take place from the effects of inflammation. Occasionally, as was before intimated, life seems to be destroyed by the shock sustained by the nervous system within a few hours after the accident, and before the constitution has had time to rally. The fæcal extravasation, when slight, is sometimes limited by the deposition of plastic lymph, and the discharge of it is ultimately promoted by the formation of an abscess; or chronic action is established in the serous membrane, and the patient, after weeks or months of suffering, sinks under the exhausting influence of the malady. In the great majority of instances, however, death is induced by acute peritoneal inflammation. The symptoms presented are violent burning pain of the abdomen with great tenderness on pressure; intense thirst; a sharp, frequent, and contracted state of the pulse; constipation of the bowels; coldness of the extremities; constant wakefulness; great anxiety and restlessness. In the latter stages there is generally some degree of nausea with occasional vomiting; the pulse is weak and fluttering; the surface is bathed with a cold clammy sweat; the features are collapsed; the breathing is oppressed and labori-

ous; the belly extremely tense and tumid; the patient is harassed with cough, his strength rapidly forsakes him, and he dies under all the symptoms of one sinking from the effects of mortification. The attack rarely continues beyond forty-eight hours, and often terminates fatally in a much shorter period. The appearances after death are always well-marked when the disease has been protracted. The peritoneal surface is highly inflamed, the bowels are covered with lymph, and the abdominal cavity usually contains a small quantity of turbid serum. The intestinal coils are frequently united to each other and to the neighboring parts, and on penetrating the belly there is almost always an escape of fœtid gas.

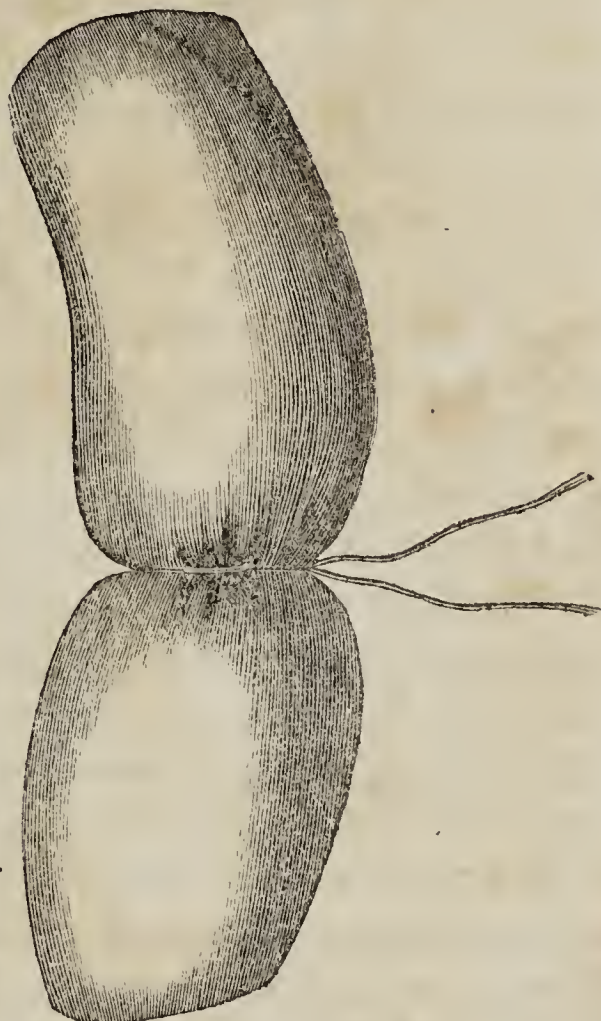
IV.—*Mode of Reparation.*

I come, in the next place, to consider the process employed by nature in repairing wounds of the intestinal tube, and the mode in which she disposes of the ligature used in securing their edges.

If a small circular ligature be drawn firmly round the bowel of a dog, or other animal, the resulting effects will be very similar to those which attend the ligation of an artery. The opposite surfaces will not only be forced into close contact with each other, but it will produce at the same time a complete division of the mucous coat. If the cord be pulled very tightly, there will be in addition, especially in young subjects, a partial separation of the cellulo-fibrous lamella and of the muscular fibres. These effects I have repeatedly witnessed in my experiments on dogs, and they may be readily produced in the human body after death. If a flat ligature be used, even when



it is drawn with considerable firmness, the opposite surfaces of the tube are merely brought into contact, without any rupture of the substance of any of the tunics. The only exception to this is where the animal is very young and the parietes of the bowel are unusually tender; in which case there will be occasionally a slight division of the lining membrane, but not of the muscular fibres. When a narrow ligature is used, the parts above and below it are so closely approximated that they touch in the greater portion of their circumference; a circumstance which must necessarily exert a most favorable influence over the reparative process and the re-establishment of the continuity of the canal.



Soon after an operation of this kind, in which a narrow circular ligature is used, inflammation is set up, plastic lymph is deposited upon and around the constricted parts, ulcerative absorption is established, and the cord at length works its way into the intestinal tube, where it is discharged along with the fæces. The period required for the detachment of the ligature may be supposed to be influenced by various circumstances, the principal of which are referable to the form and size of the foreign substance, together with the force with which it is applied, the thickness of the different tunics of the bowel, the age of the subject, and the state of the general health at the time of the operation, as well as immediately after it. In a small but full grown dog, killed at the end of the third day after the experiment, the ligature, which was round and narrow, had found its way through more than one-

half of the circumference of the tube, and in another animal of the same kind, which died from the effects of the operation thirteen hours later, the progress of the foreign body was still greater. In the latter, indeed, the cord had entirely disappeared, having lost its hold, and escaped into the bowel, in which, after a minute examination, it was discovered at the distance of several feet from the seat of the injury, surrounded by faecal matter. In both cases the continuity of the parts was thoroughly re-established by an abundant deposition of lymph, which, notwithstanding the brief period that had elapsed, exhibited already well-marked traces of organization. The bowel, however, presented in each instance a constricted appearance; and in one of the animals, that, namely, which was killed at the end of the third day, the opposed mucous surfaces were still in close contact, no attempt having apparently been made to restore that portion of the tube. In the other the parts were not only perfectly continuous with each other, as has just been intimated, but the cavity was partially re-established. In a third experiment, performed on a middle-sized dog, not more than eighteen months old, the ligature was found lying at the seat of the constriction, where it was retained by a layer of plastic lymph, which had sealed up, as it were, the surface of the fissure in the mucous tunic. The canal of the bowel was completely restored, and the bond of connexion between the divided parts firm and organized. The animal was killed on the eleventh day.

The following experiment was performed by Mr. Travers, and is recorded in his work on wounds of the intestines. A ligature of thin pack thread was firmly tied around the duodenum of a dog, so as completely to obstruct it. The ends of the string were cut off, and the part returned. On the fifteenth day, his cure being established, he was killed. A portion of omentum connected to the duodenum was lying within the wound, and the folds contiguous to the strictured intestine adhered to it at several points. A slight circumferential depression was observed in the duodenum, and the mucous surface was more vascular, as well as of a deeper color, than

usual. A transverse fissure marked the seat of the ligature. The edges of the sections were distinctly everted, and the appearance corresponded with that of the union by suture.

The lymph which is effused upon the external surface of the bowel, consequent upon the operation, gives the part at first a rough uneven appearance; but after a few weeks, sooner or later, according to circumstances, it undergoes a sort of modelling process, and hence, if the animal survive several months, it is generally no easy matter to determine the seat of the injury. In a dog which was killed four months after the experiment was performed, the reparation was so perfect that, had it not been for the attachment of a small process of omentum, it would have been impossible, by mere external inspection, to discover the place where the cord was originally applied, such were its smoothness and polish. Nor was this confined solely to the outer surface of the tube. Internally the cicatrization was almost as complete, the continuity of the mucous membrane having been every where re-established. There was scarcely even a seam at the original seat of the constriction.

It will thus be perceived that, from the rapid manner in which the ligature is detached, there is no danger that the animal will suffer much inconvenience from the want of a passage. Indeed, when the ligation is made in the small bowel, or high up in the large, the alvine discharge may go on with the same facility as before, making allowance of course for the pain which must necessarily attend an operation of such severity.

Effects similar to the above are produced when a ligature is applied round the edges of a small wound, that is to say, from two to three lines in diameter, provided it be drawn with sufficient firmness not to slip off. The cord gradually cuts through the different coats of the bowel, and the continuity of the canal is re-established by the effusion of plastic lymph upon the constricted part. The process of reparation, however, is not so speedily completed, owing to the breach being much wider than when a ligature is simply cast round the

tube. In this case the mucous membrane is reproduced only after a long time, and the amount of lymph required is proportionally much greater. The ligature is detached at a period varying from five to ten days.

Wounds and punctures of the bowel, unaccompanied by the effusion of fæcal matter, heal, when left to themselves, either by the adhesion of their edges to the surrounding parts, or by the deposition of lymph upon their surface and the gradual approximation of their lips. In the majority of cases the reparation is probably effected by the former method; since there is always a great tendency in the wounded structures to attach themselves to those in their immediate vicinity. Even wounds of large size are occasionally repaired in this manner. In some instances, again, the breach is closed by a piece of omentum, which projects into it, and fills it up like a tampon. When this happens the serous membrane is firmly fixed to the edges of the opening, and the part which corresponds with the interior of the canal and assists in maintaining its continuity, is eventually absorbed; an occurrence which leads to the gradual approximation of the lips of the wound and their ultimate re-union. Jobert thinks that this mode of reparation is not uncommon, an opinion in which my observations do not induce me to concur. That it takes place occasionally is certain, for I have several times witnessed it in my experiments. He refers to a case, reported by Dr. Qurcial of Toulouse, of perforation of the jejunum, in which the epiploon projected into the opening, and thus effected a cure.* All the older surgeons, down to La Faye, Palfin,† and even Sabatier,‡ believed that wounds of the intestines never united, except through the intervention of the peritoneum, the omentum, or some of the neighboring viscera.

In mortification of the bowels, especially when occurring

* *Traité des Maladies du Canal Intestinal*, T. i, p. 66.

† *Anatomie Chirurgicale*, T. ii, p. 66.

‡ *Medecine Operatoire*, T. i, p. 33.

in small patches, the mode of reparation appears to be similar to that which takes place when a wound or puncture is left to itself. By the time the eschar is detached the edges of the breach will have formed adhesions to the circumjacent parts, by which the effusion of fæcal matter will be effectually guarded against. Where this is prevented the patient dies from peritoneal inflammation, or an artificial anus is established.

The subject of gunshot wounds of the intestines appears to have been more profoundly investigated by Baron Larrey than by any other surgeon. He divides the curative process into four stages. In the first, the bruised and lacerated tissues are deprived of their vitality, to an extent varying according to the amount of the injury they have sustained. In this respect a gunshot wound of the alimentary canal does not differ from that of any other part of the body. In the second stage, the eschar is detached, and the opening gives vent to fæculent and purulent matter, which continues to escape for several weeks or even months. During the third stage, the discharge gradually diminishes, and at last ceases altogether to appear externally. The union of the wound constitutes the fourth stage. The corresponding textures gradually approach each other, and, cicatrizing from within outwards, the whole chasm is at length completely filled up: the primitive adhesions become absorbed, and there only remains a slight contraction of the intestinal tube at the wounded part *

When sutures are employed the mode of reparation is essentially alike, whatever may be their form. The inflammation which is lighted up induces an effusion of lymph, which is speedily followed by adhesion of the injured coil to the neighboring structures, among which it is sometimes completely buried. At other times no such adhesion occurs, but the affected part throughout the entire line of suture is coated

* *Medico-Chirurg. Review*, vol. xvi, p. 53.

with a layer of plastic matter, by which the continuity of the serous surface is finally re-established, and the threads used in sewing up the wound are concealed from view. In almost all cases—certainly in eight out of ten—there is an attachment of the omentum to the surface and edges of the wound, which thus assists, in an eminent degree, in the process of restoration. I speak now of course only of what I have noticed in dogs; whether the same thing takes place so readily, and to the same extent, in the human subject, my information does not enable me to determine. Probably it does not, as the epiploon is generally much smaller in man than in some of the inferior animals, especially in the canine races. The attachment of this membrane to the surface and edges of the wound is a very different matter, it will be observed, from the projection of it into the breach, in the manner pointed out and so strenuously insisted upon by Jobert. We have already seen that the latter is comparatively rare, while the other, on the contrary, is exceedingly frequent.

This extraordinary tendency to adhesion in the external surface and edges of the wound to the parts around it, is nothing more than what might be expected when we reflect upon the nature of the peritoneum, and its invariable disposition, when inflamed, to pour out lymph. But it is otherwise with the mucous membrane. Here the process of re-union is not only much slower but much less perfect; lymph is furnished very sparingly, or in quantities barely sufficient to fill the chasm between the margins of the wound; and, owing to the heterogeneous and irritating nature of the contents of the tube, a long time must necessarily elapse before it can become an organized or living intermedium. The little narrow band thus formed adheres firmly to the bottom of the wound, but very slightly, if at all, for some days, to its edges. Gradually, however, it becomes more and more dense; vessels extend into it from the circumjacent parts; its margins are flattened down; and, after a period varying from a few weeks to as many months, the adhesion is finally completed. Subsequently, or, indeed, while the changes just

adverted to are still in progress, the new matter is nearly all absorbed, the wound greatly diminishes in width, and when the cicatrizing process is perfected merely a small depression or seam remains, to indicate the original seat of the injury. The whole process may be compared to that which nature employs in the reparation of ulcers of the mucous lining of the small and large bowel.

This, however, is only one mode in which the restoration of the mucous surface is effected. Another, though by no means a frequent one, is by granulation. It has been already stated that, owing to the irritating and heterogeneous character of the contents of the bowel, the lymph which is deposited upon the wound is very tardy in becoming organized, and it may now be added that this process is occasionally entirely prevented, the substance in question being either destroyed or removed by the fæcal matter as it passes over the affected part. When this happens, nature, faithful to her duties, makes an effort to repair the breach by the formation of granulations, as in similar injuries of other textures. The process under these circumstances is generally much more tardy than in the previous case, the cicatrization is also less complete, and the tube is much more apt to be puckered immediately around the seat of the injury. Mr. Travers seems to doubt that the fissure in the mucous lining is ever filled by granulation. "I had been led to expect," says he, "that the interstice of the villous coat would be filled by granulation, and that the substance of the cylinder would in this way be restored at the place of division. But finding the eversion of the villous edges uniform and permanent, it seemed doubtful if such a process could be set up, as perfect surfaces were opposed to each other. It is also not inconsistent with the indisposition of mucous surface to the adhesive inflammation to infer that it does not readily admit of the granulating process, which is only an advanced stage of that inflammation."*

* Op. cit., p. 131.

I quote the language of this distinguished author, in order that his meaning may be fully understood. I am not aware that a similar opinion has been expressed by any other writer, and how so accurate an observer should have arrived at so erroneous a conclusion cannot be easily conceived. That granulations are formed on mucous surfaces is a matter of daily observation, and my researches have abundantly satisfied me that they are occasionally concerned in the restoration of the villous portion of a wounded bowel. The process of course is difficult; it must be so from the very nature of the mucous tissue, indisposed as it is to pour out plastic lymph; but this does not prove that it may not take place.

This writer has made another remark in relation to this subject not less erroneous, when he asserts that the adhesion which takes place between the mucous surfaces within a few hours after their connexion by suture is in no instance permanent, but that it is destroyed by the retraction of the divided parts when the ligatures drop off. Such an occurrence does undoubtedly sometimes take place, but I have repeatedly observed the reverse, and there is reason to believe, judging from the results of my own researches, that this happens much more frequently than is commonly supposed. Several days, often as many as eight or ten, must of necessity elapse before the sutures are detached; a period which is more than sufficient, in the plurality of cases, for the agglutination of the villous lips of the wound by plastic lymph. The apposition of the parts, moreover, is eminently favored by the crippled and paralysed condition of the muscular fibres at the seat of the injury, and by the tendency of the mucous membrane to eversion at the moment of the accident.

From the foregoing observations it is evident that the process of re-union is the same, whether the bowel be encircled partially or wholly by a ligature, whether we employ the suture, or, lastly, whether the wound, provided it be not too ample, be entirely intrusted to the resources of nature. In each case the restoration is effected through the medium of plastic lymph, poured out as a consequence of inflammation,

and undergoing, sooner or later, a certain degree of organization.

The manner in which the ligatures are detached varies, as might be expected, according to the mode in which they are applied. Both in the interrupted and continued sutures, with their different modifications, the threads, provided their extremities are cut off close to the surface of the wound, invariably fall into the alimentary canal, along with the contents of which they are afterwards evacuated. This, indeed, may be laid down as an axiom, to which I saw no exceptions in any of my experiments, and which fully confirm, in this particular, as well as in many others, the researches of Smith, Thomson, Travers, and Cooper. The fact that the foreign body employed in making the suture is thus disposed of appears to have been first noticed, at all events hinted at, by Mr. Benjamin Bell in his *System of Surgery*; but it remained for two of the gentlemen whose names have just been cited, namely, Mr. Thomson and Mr. Travers, to settle the question by a direct appeal to experiments on the inferior animals.

The same circumstance, as was previously intimated, occurs when a ligature is cast around a loop of intestine, or when it is employed to encircle the margins of a small aperture, whether caused by injury or mortification. If, on the other hand, the extremities are permitted to hang out at the external wound, they will be discharged outwardly instead of inwardly, as in the former case. When the threads, through accident or negligence, slip beyond the reach of the operator, and escape into the peritoneal cavity, they will either induce fatal inflammation, or lymph will be poured out and they will thus become encysted, or they will excite ulcerative action in the coats of the bowel and find their way into it, or they will be evacuated through the opening in the wall of the abdomen.

V.—*Treatment.*

Leaving this subject, I proceed to speak of the treatment of wounds of the intestines; a topic which necessarily involves the consideration of the suture in all its modifications and varieties.

In entering upon the discussion of this subject, for the elucidation of which my researches were mainly instituted, the first question that presents itself is, are there any circumstances in which the surgeon should feel himself justified in returning into the abdomen a wounded bowel without sewing it up, and, if so, what are they? This is a point, it must be conceded, of paramount importance, since it closely concerns not only the reputation of the practitioner, but, what is of much greater moment, the fate of the sufferer.

Penetrating wounds of the abdomen are not necessarily attended with protrusion of the bowels. Far from it. It is well-known that serious mischief is frequently inflicted, and yet, owing to the small size of the external opening, to the position of the body at the time of the accident, or to some other cause, there is not the slightest prolapse. In a case of this kind it does not matter, as a general proposition, what may be the extent or direction of the wound; whether, in other words, it be small or large, oblique, transverse, or longitudinal, since the treatment is to be conducted solely upon general principles, like that of any other internal or penetrating wound whatever. No probing is to be done, no dilatation practised, no suture employed. All that is required is to keep the patient quiet, and to resort to such means as are calculated to prevent inflammation, or, if this should arise, to limit its action. This is all that sound surgery demands; all that common sense indicates. Still, as there are no rules in grammar without exception, so there are very few, if any, in the healing art that do not admit of some deviation from established usages. This I believe to be eminently true in regard to the present subject. While, therefore, I would con-

demn as much as any one, and in language as emphatic as it is possible to express it, an indiscriminate recourse to the means just referred to, or not dilate the external wound and search for the injured bowel, with the view of sewing it up, simply because the patient had been hurt, I believe that circumstances may occasionally occur in which such a practice would not only be proper, but highly necessary to the safety of the individual. Let us, for the sake of being more fully understood, suppose a case: A man, after having indulged in a hearty repast, receives a penetrating wound in the abdomen from the thrust of a dirk or knife; the bowel is pierced, or, it may be, nearly divided, and there is a copious discharge of fæcal matter, both externally and into the peritoneal cavity, as is evinced, in the latter event, by the excruciating pain, the gastric oppression, and the collapsed condition of the sufferer. Here the most prompt and decisive measures must be resorted to, or the person will perish from peritoneal inflammation with as much certainty as if his skull had been fractured and a portion of his brain let out. It will not do for the surgeon to fold his arms, and look upon the scene as an idle and uninterested spectator. Far otherwise. He has a duty to perform, and that duty consists in dilating the external wound, if it be not already sufficiently large, in hooking up the injured bowel, and in closing the solution of continuity with the requisite number of stitches, at the same time that the effused matter is carefully removed with tepid water and a soft sponge. All wiping must of course be studiously avoided, if it be possible to do it, as this would add much to the risk of peritonitis. After the bowel is exposed, and this should be done freely, if necessary, the water is to be pressed from the sponge so as to run over the affected surface in a full stream. This method, as I know from numerous trials, not only removes any foreign substance more easily than wiping, but is much less apt to be followed by unpleasant consequences.

By the above procedure, which, under the circumstances pointed out, I should never hesitate to pursue, the patient is

not placed in a worse condition than a female who has undergone the Cæsarian section, or a person whose abdomen has been ripped up in the first instance; recovery from both of which is not, as is well-known, of unfrequent occurrence. A case in which a most extensive wound of the belly, with complete division of the ileum, and serious lesion of the thoracic cavity, was successfully treated by Mr. Calton, of Scotland, is reported in the twelfth volume of the *Edinburg Medical and Surgical Journal*, and another, in which still more frightful mischief was inflicted by a cannon-ball, and yet the man got well, is mentioned in *Hennen's Military Surgery*, and will be found in another part of this essay. A number of similar examples are scattered through the records of the profession, and could the experience of practitioners generally be ascertained in regard to this point it would be found, I doubt not, to afford a vast amount of additional evidence illustrative of this important subject. The truth is, the fatality of penetrating wounds of the abdomen has been greatly overrated. Injuries of this kind have been a sort of bugbear with surgeons and physicians, not so much from what they themselves have witnessed as from what they have heard from others; and hence a prejudice has arisen against the infliction of wounds and even punctures upon the peritoneum which has "grown with our growth and strengthened with our strength" until it has become almost impossible to eradicate it.

In making these remarks respecting the dilatation of the outer wound, for the purpose of enabling us to search for the injured bowel, let it be understood that I would recommend the practice only under particular circumstances. These circumstances have been already pointed out, and it is not necessary, therefore, to dwell upon them in this place.

When there is reason to suspect, from the nature of the vulnerating body, that the opening in the intestine is comparatively small, not exceeding, perhaps, the third or fourth of an inch in diameter, it would be extremely improper, if not absolutely unjustifiable, to search for the bowel with the view of sewing it up. Such a step, indeed, could not be too

strongly reprobated, as it would seriously complicate an injury which, if left to itself, might easily heal.

The above remarks, with the reasoning founded on them, are fully borne out, if I mistake not, by some of the facts cited in a previous part of this inquiry, in relation to the escape of fæcal matter from the alimentary canal, when laid open to the extent of from four to six lines, whether longitudinally, transversely, or obliquely. In all cases of this kind, with scarcely a solitary exception, death is produced in from thirty-six to forty-eight hours by peritoneal inflammation. Mr. Travers, with many other respectable surgeons, is, I am aware, strongly opposed to the practice of dilating the abdominal wound and searching for the injured bowel, on the ground that the intestinal aperture retains its apposition with the parietal orifice; but he has adduced no experiments, or facts of any sort, in support of his conclusion, which is, besides, at variance with the existing state of our knowledge in relation to the subject. My own researches, at all events, have led me to a different result, and I can therefore see no just reason why the suggestion which I have ventured to throw out should not be adopted under the restrictions indicated.

The next topic into which I shall inquire is the conduct which the practitioner should observe when he is called to a penetrating wound of the abdomen, attended with protrusion, but no particular injury, of a portion of the alimentary canal. Cases of this description are by no means unfrequent, and they occasionally happen when the external opening is so small as to render it seemingly impossible for any prolapsion to take place. By the older surgeons such injuries were often treated in the most barbarous manner, and it is not improbable that serious harm is sometimes done by the ignorant and timid in our own day. Instead of reducing at once the extruded intestine, a procedure sanctioned both by theory and experience, a great deal of time used to be wasted in fomenting the part, in the vain hope that this would promote recovery; and when at length, by the delay thus occasioned, the gut became too painful to be replaced, instead

of dilating the outer wound, they did not hesitate to leave it in its exposed situation; a practice which, as might have been supposed, was speedily followed by the death of the patient, or, what is scarcely less pitiable, an artificial anus.

It is perfectly plain that in such a case the part should be at once restored, without the loss of a moment. It is certain that no good can be done by delay, while it is equally clear that it may be productive of much harm. Before the surgeon proceeds to the operation, the patient should be placed in the best possible position for relaxing the abdominal muscles. For this purpose he should lie on his back, the head being supported by a pillow, the pelvis elevated higher than the shoulders, and the lower extremities bent at the hips and knees. If the bladder be much distended, it should be previously emptied, and the patient should refrain from coughing, holding his breath, or any similar efforts calculated to impede the reduction. In a word, he should conduct himself precisely as if he were about to undergo an operation for strangulated hernia.

When these arrangements are effected, the surgeon, standing at the side of the patient that may be most convenient to him, takes the bowel into the left hand, while with the right he gently pushes it back, taking care to begin with the part which was protruded last, or which is nearest the wound. These efforts are to be continued until the whole slips into the abdominal cavity, when the external opening is to be closed in the manner to be pointed out presently, and the case treated upon general principles. Proceeding slowly and cautiously in this wise, the largest protrusions may generally be replaced without much difficulty, without inflicting any undue violence upon the patient, or without endangering the result by peritoneal inflammation. Nevertheless, it is sometimes almost impossible to effect the reduction, even when the prolapsion is inconsiderable, owing to the smallness of the external orifice, to the distended condition of the bowel, or to the spasmodic action of the muscular fibres, or to all these causes combined. Be this as it may, the best method

under these circumstances is to enlarge the wound to the requisite extent by means of a probe-pointed bistoury, cautiously insinuated between the gut and the resisting parts. Some of the older surgeons, as Paré, Low, and Garangeot, were in the habit, when the difficulty depended upon inflation, or gaseous distention, of making punctures in the bowel to evacuate the contained air; a practice which was afterwards embraced by Gooch, Sharp, Sabatier, Chopart and Desault. The plan, as originally suggested, consisted in making the punctures with a small needle, which was replaced by a large round one in the hands of Chopart and Desault, who have described the operation with much minuteness. The procedure, however, was pointedly condemned by Blancard and La Faye, on the very sufficient ground of its inefficacy, as well as danger, and is now scarcely ever thought of, except as a matter of scientific curiosity. Others have recommended the substitution of a small trocar, but the same objections lie against it as against the use of the needle.

In our attempts to restore the bowel to the abdomen, it is all important to know that it has actually slipped into its natural situation. The route which the wound follows is occasionally very devious, or it may happen that there is a slight detachment of the peritoneum round the edges of the inner orifice, produced either in the first instance, or by the finger of the surgeon in his efforts at reduction. In either case, a most serious error may be committed by supposing that the protruded parts have been returned, when in reality they are retained on the outside of the serous cavity, where they may become strangulated, or affected with undue, if not fatal, inflammation. The operator should therefore never rest satisfied that the restoration has been accomplished unless he is convinced that the finger has been fairly within the abdomen, or in contact with the convoluted surface of the bowel.

Penetrating wounds of the abdomen are rarely unattended with some protrusion of the omentum. From the situation of this serous lamella, and from the manner in which it is spread

over the surface of the bowel, it is indeed usually forced out first, and not unfrequently it is the only part prolapsed. However this may be, it should always be carefully returned, otherwise the greatest mischief is to be apprehended. A distinguished surgeon, Baron Larrey, has, it is true, advised us to let it alone, that is, neither to return it, nor to remove it by the knife or ligature; a practice recommended by some very eminent authorities. Soon after the accident, he observes, the extruded membrane swells, becomes thick and red, and assumes a rough, granulated aspect. These symptoms increase until the third day, after which they remain stationary for nearly a fortnight, when the part begins to shrivel, and is ultimately reduced without any operation.* Very few practitioners will, I presume, be disposed to follow this advice, which is, to say the least of it, singularly at variance with that of the best writers on penetrating wounds of the abdomen and the management of ruptures. That practice is undoubtedly the safest which most readily promotes the recovery of the patient, and that this desirable end is more promptly and perfectly attained by returning the whole of the prolapsed omentum at once into the abdomen, than by allowing it to remain in the situation pointed out by the Baron, no one can doubt. Both experience and common sense are in favor of the course of treatment so long pursued by the ablest surgeons, and I can therefore see no necessity for adopting a new one, especially when that method is of an equivocal character. It is a good maxim in surgery, as it is in morals, to let well enough alone.

It need hardly be remarked that, when the protruded parts are covered with dirt, fæces and blood, or other extraneous matter, they should be carefully cleansed before any attempt be made to restore them to their natural situation. The importance of this practice is too obvious to require any comment. The best article for this purpose is tepid water, either

* *Medico-Chir. Review*, vol. ii, p. 261. 1821.

alone or mixed with milk, applied by means of a sponge held some distance off. The stream thus produced is well calculated to detach the foreign substances, whatever they may be, without inducing any additional irritation. In no case should the parts be sponged or wiped, for reasons which it is unnecessary to specify. If the extraneous matter adhere with much firmness, it may be picked off with a pair of forceps, or some other instrument, and on no account should the bowel be replaced until it has been thoroughly cleansed.

Fomenting the extruded parts with infusion of chamomile flowers, oil, hops, or wine and water, as recommended and practised by the late Baron Larrey, can do no good, and ought to be avoided. The advice of the French surgeon, indeed, is decidedly objectionable, if not reprehensible. The abdominal organs are the best fomentors, and the sooner the protruded parts are brought into contact with them the better.

The omentum, when prolapsed along with the bowel, should always be reduced last, and care taken to spread it out as much as possible over the parts which it naturally covers. This can generally be easily done by means of the index-finger of the right hand introduced into the peritoneal cavity, and is calculated to prevent its subsequent protrusion between the edges of the wound; a circumstance which almost constantly happens when this precaution is neglected.

In regard to the management of the external wound, it is obvious that it must be conducted upon the same general principles as that of a solution of continuity in any other situation. Sutures should never be employed, except where they are imperiously indicated. It should be remembered that they are foreign bodies, which can never be resorted to without an increase of pain, or without endangering the development of too much morbid action. It is well-known, too, that when introduced into tendinous structures they are apt to excite a bad form of inflammation, and that, if inserted into muscular parts, spasm and even convulsions may be the consequence. Nevertheless, cases often do

occur in which we cannot dispense with them. The wound may be unusually large, or the patient so restless and unmanageable as to render it impossible to prevent a recurrence of the protrusion unless the parts be sewed up. Under circumstances such as these we would not only be warranted in employing the suture, but we should be justly culpable if we neglected it. Dogs bear this treatment with perfect impunity, and many cases are recorded in which it was advantageously employed in the human subject. In making a suture in this situation the needle should be carried through the lips of the wound within a line and a half or two lines of the peritoneum, and the requisite number of threads placed before any of them are tied, in order to avoid injury to the omentum. The ends are then cut off, and the approximation perfected by means of adhesive strips, the whole being secured by a compress and broad bandage carried two or three times round the abdomen. At the expiration of thirty-six or forty-eight hours the ligatures should be cut away, as the parts will have sufficiently united to render them unnecessary. When the wound is very extensive some surgeons prefer the quilled suture, as it is termed, but for this there can seldom be any necessity, when the case is managed in the manner just mentioned.

Penetrating wounds of the abdomen, attended with lesion of the intestinal tube, constitute a class of injuries of a much more serious character than such as are accompanied merely by prolapse. The symptoms are generally more severe, there is more danger of peritoneal inflammation, and the treatment, especially when the opening is extensive, is altogether different; or, to speak more intelligibly, two wounds, involving different structures, exist, and consequently require different modes of management.

When the inner wound is large the treatment to be employed is sufficiently obvious, for no well educated surgeon would hesitate to resort at once to the suture, or to some other contrivance calculated to prevent faecal effusion. It is only where the opening is small that doubts seem to be entertained

respecting the proper course to be pursued. The question can only be decided by an appeal, not to the speculative views of professional men, but to direct experiment upon the inferior animals and observation upon the human subject. The evidence which I shall adduce will go far, if I mistake not, to settle this important point of pathology and practice.

Heister, who was confessedly one of the ablest anatomists and surgeons of his day, expressly states that all wounds of the intestines not exceeding the diameter of a goose-quill should be returned without stitching, which he asserts to be generally productive of severe pain, inflammation, and other bad symptoms.* Dionis says if the opening is very small, as for example, when it is made by a bodkin or pen-knife, it is not necessary to sew it up; nature, seconded by a rigid diet, being fully competent to effect a cure.† To the same import very much is the testimony of Palfin,‡ and of Sabatier. The former of these authors observes that whenever the opening is diminutive it is not necessary to sew it up, but simply to return the part, and to restrict the patient to the smallest possible allowance of food, barely sufficient to prevent starvation. “If the wound,” says Sabatier, “is very slight, as when only a few muscular fibres are involved, it is needless to resort to the suture, since a cure may be accomplished without it.” Sharp, in his *Operations of Surgery*,§ uses very nearly the same language. The opinion of Jobert, whose writings have been already several times quoted, is, that the wounded intestine may be safely returned, provided the opening does not exceed three lines. Where it is more extensive, as for instance half an inch, although reparation might possibly take place through the intervention of the epiploon, still there would be great danger of fæcal effusion,

* Travers, *op. cit.*, p. 172.

† A Course of Operations, p. 53. English Edition, London, 1733.

‡ Anatomie Chirurg., T. ii, p. 76.

§ P. 9. London, 1784.

and hence he very justly concludes that it would be much better to sew it up.*

Richerand, also a modern writer, recommends a very different practice when the wound is very small, or does not exceed two or three lines.† His plan is to pass a loop of waxed thread through the mesentery, and to keep the inner wound as nearly as possible in apposition with the outer. The object is to afford a ready outlet to the fæcal matter, by the artificial anus which is thus established. This method, to which I shall hereafter recur, is not new with Richerand, but originated long ago with La Peyronie, an old French surgeon. Boyer remarks‡ that when the wound is more than four lines in extent enteroraphy becomes indispensable.

In a preceding part of this essay—page 8—several experiments are related which have a direct bearing on this subject. The particulars, however, it is not necessary to reproduce in this place. It will be sufficient to say that in the three experiments in which the wound did not exceed four lines, or the third of an inch, the animals promptly recovered, while in the remainder, five in number, and in which the opening was of greater extent, they all died of fæcal effusion. So far, then as these researches go, they tend to confirm the opinion of Heister, Sharp, Garangeot, and others, that a protruded bowel, in which there is only a very small wound, may be safely returned into the abdomen, without any apprehension of the escape of alvine matter. But would the surgeon be really justified in pursuing such a practice? I unhesitatingly aver that he would not, for the reason that, although this course may, in the generality of cases, be attended with success, yet it is liable to occasional failure, and should therefore be discountenanced. The introduction of a suture, which is all that can

* *Maladies du Canal Intestinal*, T. i, p. 72.

† *Nosographie et Thérapeutique Chirurg.*, T. iii, p. 319. Paris, 1821.

‡ *Traité des Maladies Chirurgicales*, T. vii, p. 377. Paris, 1831.

be needed in a small wound, will assuredly add little either to the present suffering of the patient or to the danger of peritoneal inflammation; the operation is neither painful nor tedious, and, what is of far more consequence, always, when well performed, protects the individual from fæcal effusion. In several of my experiments death was produced, not from any undue injury inflicted upon the bowel from stitching or any rough manipulation, but from the interval between the sutures being so great as to prevent the perfect closure of the wound; a fact which should never be lost sight of in the management of a lesion of this kind. Whenever the contact is incomplete, the mucous membrane becomes everted, and interferes with the adhesive process. The more accurately this is obviated the less risk will there be of the escape of fæculent and other matter, calculated to induce fatal peritonitis. I do not care, therefore, how small the wound may be, if it is only a line and a half, or two lines in extent, it should by all means be sewed up. In this practice alone can there be perfect security for the patient. The villous membrane may, it is true, effect a temporary closure of the wound, but there is always danger that before adhesion can take place, the part will become so much relaxed as to lead to mischief.

In closing this branch of the present inquiry I cannot omit quoting the sentiments of an old and distinguished surgeon, whose works, highly popular in their day, have been too much neglected by modern practitioners. I allude to Mr. Benjamin Bell.* “However small,” says he, “a wound of the intestine may be, it ought always to be secured with a ligature; for although it is alleged by some that we should rather trust to nature for the cure of a small opening than to insert a ligature, to me it appears that the opinion is by no means well-founded; insomuch that I would not leave even the smallest opening that could admit either fæces or chyle to

* A System of Surgery, vol. v, p. 281.

pass, without stitching it up. Much danger may ensue from omitting it; and the hazard of the patient cannot be increased by the practice being adopted.’’

Co-incident with this opinion of Mr. Bell is that of Mr. Lawrence, of London, whose views upon the subject are entitled to great weight, from the unusual opportunities which he has enjoyed for treating strangulated hernia. Adverting to the practice recommended by Jobert, and referred to in a previous paragraph, of replacing the bowel without suture, when the wound does not exceed three lines, he affirms that such a procedure would not only be hazardous, but unwarrantable in the present state of the science. “In case of such an opening in the intestine,” says he, “I should employ suture; not considering it safe to return the bowel into the abdomen without this precaution.”*

It might be supposed that, in a treatise professedly devoted to the subject, considerable space would be allotted to the therapeutic treatment of wounds of the intestinal canal. Such a course would undoubtedly be highly proper, if not, indeed, indispensable, if these lesions involved any thing peculiar in this respect; but when it is remembered that they are to be managed upon the same principles as wounds in other parts of the body, much discussion of this kind would, to say the least of it, be irrelevant.

After the bowel has been restored to its natural situation, whether enteroraphy has been employed or not, the first and most important object is to guard against the occurrence of peritoneal inflammation, as it is upon this that the safety of the case mainly depends. Perfect quietude in the recumbent posture, the early and copious abstraction of blood, especially if the patient be plethoric, or the wound extensive, and the most rigid observance of the antiphlogistic regimen, are the means upon which our reliance is to be placed in the first instance. If the bowels be not evacuated spontaneously in

* *Treatise on Ruptures*, p 301. London, 1838.

six or eight hours after the parts have been returned, a stimulating enema should be thrown into the rectum, but under no circumstances should the alimentary canal be disturbed by the administration of purgative medicines by the mouth, as these, however mild, will be likely to cause griping pains and to interfere with the reparative process. This plan is to be persisted in for at least three or four days, when a dose of castor oil may be given, or, which would be better, an ounce of sulphate of magnesia or soda. The more fluid the alvine matters can be rendered the less likely will they be to be arrested at the affected part, to derange the sutures, or to disturb the healing process. All drastic articles must be sedulously avoided, on account of their tendency to create gastric irritation, and to excite undue peristaltic action of the bowels; two circumstances concerning which we cannot be too much on our guard.

The pulse should be attentively watched, and as soon as re-action is fully established, blood must be taken from the arm by a large orifice, and while the patient is in the semi-erect posture. The amount to be abstracted must vary according to the indications of the case, particularly the age and constitution of the individual, the return, continuance, or increase of the local pain, the force and frequency of the pulse, and the extent of the injury. The first bleeding ought, in general, to be tolerably copious, but after this eight or ten ounces at each repetition will be sufficient. In this way we prevent inflammatory action, or moderate it, where it has already taken place, without inducing too much prostration. It should be recollected that the pulse in peritonitis is hard, wiry, and contracted, and that the practitioner, if he be not fully aware of this, will be apt to fall into the error of omitting the abstraction of blood at a period when it is loudly called for, and when it can alone be of any avail in arresting the progress of the malady. General bleeding, however, is not always admissible. The shock which the system has received may be unusually severe; the reaction may be tardy and imperfect;

and the patient may perhaps be for several days in a dozing state, with a weak and tremulous pulse, cold extremities, and great pallor of the countenance. In such a case, instead of taking blood from the arm, the practitioner must content himself with fomentations to the abdomen, consisting simply of warm water, or of water in which hops, opium, or poppy-heads have been infused, and frequently renewed. Even leeches are scarcely to be thought of. Where the stomach is irritable, mustard poultices are to be applied to the epigastric region, and if the patient is unable, as he occasionally is, to void his urine, it must be drawn off with the catheter. If cough be present, it is to be combated by the usual means, and not allowed to progress, as the concussion thus induced might prove highly detrimental. When the patient is harassed with colicky pains, relief may be attempted by laudanum or the salts of morphia, but as the effect of these and similar articles is to create constipation, they should be employed as sparingly as possible. The tenesmus which is sometimes present is to be allayed by anodyne injections or suppositories; and where there is much discharge of blood from the bowels, the acetate of lead may be administered in large and repeated doses.

When there is much tumefaction of the abdomen with gastric irritability, and tenderness on pressure, Baron Larrey* advises cupping, aided by camphorated and oily embrocations, emollient cataplasms, and anodyne enemata. In a case, apparently of the most hopeless character, in which this practice was put in force, the disease yielded in a very short time, not, however, without vesication of the whole surface of the abdomen. With cupping I have no experience in the treatment of peritoneal inflammation, traumatic, or otherwise; but it seems to me that it would be attended with so much suffering to the patient as to preclude its employment in

* Surgical Essays, translated by Dr. Revere, p. 235.

most, if not all cases of the kind. Leeching would certainly be preferable.

The diet must be of the most simple nature. For the first fortnight or three weeks, it should consist chiefly of amylaceous articles, as arrow root, tapioca or sago; afterwards it may be more nutritious, but must still be fluid. Solid, stimulating, or flatulent food is not to be used for several months after the accident. Two or three cases will hereafter be mentioned, where, from disregard of this precaution, the patient fell a victim to his imprudence, when he was apparently out of all danger. As a constant drink, nothing can be better than cold water, flax-seed tea, slippery-elm water, or a solution of gum-arabic, simple or acidulated. In a word, the patient should be half-starved, and as much depleted as is consistent with the restorative process. Our treatment must be prompt and energetic. No time is to be lost, or the case will slip out of our hands. The great error with most practitioners is that they do not abstract blood sufficiently early, or before peritoneal inflammation is thoroughly established, or has made such inroads upon the system as to render it impossible to arrest its progress.

When blood is extravasated in considerable quantity into the peritoneal sac, as is evinced by the soft and tremulous state of the pulse, the pallor of the countenance, the coldness of the extremities, and the constant disposition to swooning, the patient must be immediately placed in the recumbent posture, and made to take large and frequently repeated doses of the acetate of lead in union with opium. Mustard poultices should be applied to the hands and feet, and cloths, wrung out of cold water, to the abdomen, which is to be encircled at the same time with a broad bandage, to afford equal support to the viscera, and thereby promote the coagulation of the effused fluid. When there is reason to suspect that a large artery has been opened, the most effectual practice will be to cut down upon the parts, and secure it with a ligature. This procedure, however, has few advocates, and should only be employed as a dernier resort, not as a

matter of choice. It would certainly be better to make an effort to save the patient by an operation, even of a desperate character, than to allow him to perish from the loss of blood, when the wounded vessel is within our reach.

The dressings must be light, simple, and unirritating. If there be a discharge of fæculent matter, as there may be when the internal wound has not been properly sewed up, or even where there has been no protrusion in the first instance, it should be disturbed as little as possible, until there is reason to believe that the bowel has contracted firm adhesions to the surrounding parts. By disregarding this precaution fatal effects might ensue from the extravasation of the matter into the peritoneal cavity. During the whole treatment the utmost attention should be paid to cleanliness. As the external opening diminishes, means are to be employed to prevent the escape of fæces, by which the patient will be rendered more comfortable, and the healing process expedited.

When the patient is well enough to sit up or walk about, the weakened parts should be supported by a compress and broad bandage, or, what is better, a good truss, which should be worn day and night, to prevent the separation of the edges of the sore, and the protrusion of the contents of the abdomen. This caution, as has been justly observed by Mr. Benjamin Bell, ought to be persisted in for a considerable time after the cure has been completed. By a want of attention to this point, very troublesome cases of hernia have occurred, which might otherwise have been obviated.

Patients who have recovered from wounds of this kind must pay particular attention to their bowels, which should be kept in a soluble condition, and on no account be allowed to be costive, even for a single day. They should also be extremely temperate in their diet, and carefully masticate their food before it is swallowed. All rough exercise, as riding on horse-back, jumping, running, and even rapid walking, must be avoided.

(To be continued.)

Selections from American and Foreign Journals.

Virey's Objections to Liebig's Theory of the Uses of Respiration and of the Food.—Liebig maintains that the chief use of the food is to supply carbon and hydrogen, which, uniting with the oxygen absorbed from the air, give rise to the generation of animal heat. He consequently holds that there is a certain fixed relation between the amount of food consumed, and the quantity of carbon and hydrogen thrown off at the lungs. Mr. Virey opposes this theory, as contrary to common observations, as, even though it be allowed to be applicable to mammalia, birds, and reptiles, it is by no means to those animals which respire by means of branchiæ. Thus all animals with branchiæ consume but little oxygen, comparatively speaking, and yet many of them devour very great quantities of food. Even the largest and most voracious of the reptiles, as the alligators, crocodiles, &c., which devour enormous quantities of food, under a burning climate too, respire feebly with their vesicular lungs, and consume but little oxygen.

Fishes, whose blood is but imperfectly oxygenated by the branchial apparatus, are perhaps among the most voracious of animals, and yet, according to Liebig's theory, they ought to eat little, because they consume little oxygen.

The same holds true of the Mollusca. The cuttle-fish, *buccinum*, *strombus*, *murex*, &c., grow to a large size; but their respiration is very imperfect, and yet they are great flesh-eaters. The Crustacea, again, as the crabs, lobsters, &c., grow rapidly, because they are great eaters; but their branchial apparatus is not fitted to consume much oxygen.

In all these animals assimilation takes place very rapidly, notwithstanding their feeble respiratory powers; and they are, besides, by no means deficient in activity or muscular powers, though their flesh be but feebly azotized or animalized, and their blood is always cold.

If it be one of the characters of vitality, that the more perfect this principle is, the greater is the number of germs, or eggs, or foetuses produced, then, quite contrary to Liebig's theory, the number of germs produced is in the inverse ratio of the perfection of the respiratory functions. Fishes and mollusca deposit their spawn or eggs by millions; but the mammalia, and even the birds, whose respiratory functions are the most perfect, are in this respect infinitely behind these. On the other hand, it is seen that the number of germs or eggs is rather proportioned to the nutrition received; for the amount of food taken is not proportioned to the respiration in the animal kingdom.

Virey therefore concludes, that the vital force or central nervous energy has more to do with the production of animal heat than the consumption of carbon at the lungs, and this for three special reasons;—1st, Because a fecundated egg resists a freezing temperature longer than one which has not been fecundated. 2d, That a hybernating insect, reptile, or animal, or even trees during winter, by the sole influence of a vital power, resist a freezing temperature, whereas the same animals, if dead, would be instantly frozen. 3d, That many mammalia and birds keep themselves warm even in the most rigorous winters under the Pole, not in consequence of a greater amount of oxygen consumed, nor by a greater amount of muscular activity, but in consequence of a more abundant highly azotized or animalized nourishment.—*Jour. de Pharm.*, May, 1842.

Phloridine.—This is a new medicine, which is now very highly spoken of by French practitioners as a useful adjunct to our cinchona preparations. It has been used for some years in Germany, Poland, and France. It is extracted from the bark of the roots of the apple-tree and the wild cherry-tree, and is thus prepared: the bark of recent roots is boiled with water sufficient to cover them; for half an hour. This is poured off, and the same quantity is again used; these two fluids are mixed together, and at the end of six hours deposit the phloridine in the form of a deep-red velvety-looking matter.

Lebaudy, the editor of the *Journal des Connaissances Médico-Chirurgicales*, says, "its efficacy is so decided, that we cannot hesitate to class it with the most powerful febrifuges; and it has this advantage over quinine, that it never induces gastralgia."—*Braithwaite's Retrospect*, No. 5.

Treatment of the Hemorrhagic Diathesis.—*The London and Edinburgh Monthly Journal of Medical Science* for July last contains an exceedingly interesting paper on this subject, read before the Medico-Chirurgical Society of Edinburgh, by JAMES MILLER, the successor of Sir Charles Bell, in the Surgical chair of the University of Edinburgh.

To constitute the hemorrhagic diathesis, we have not only, Mr. Miller observes, the blood flowing through dilated and non-contractile tubes, but sent thither in greater volume than in ordinary and healthy circumstances, thinner and more fluent than in health, and little if at all able to arrest its own course by assuming the solid form. In addition, the capillary tunics are not only thin, but weak, and easily lacerable; a slight bruise produces serious ecchymosis; coughing may induce hæmoptysis; a sneeze brings on epistaxis; diarrhœa occasions copious evacuations of blood by the rectum; and extravasations are not unlikely to follow but slight causes within internal cavities. The whole circulating system, besides, is usually in an irritable and excited condition; the pulse being considerably above the healthy standard, and the heart acting with unusual force and sharpness. Not unfrequently, a febrile condition at the same time exists; and when it does exist, it increases the intensity of the diathesis.

In the treatment of the hemorrhagic diathesis, Mr. M. directs attention to the following points:—1. *Energetic treatment at the outset*, for then only have we the blood favorable for coagulation, and the parts tolerant of pressure. 2. *The propriety of internal remedies*—astringents, sedatives, nauseants, and hydragogues—to obviate, if possible, the morbid condition of the blood; and administered either by the mouth or anus, according to circumstances. 3. *Abandonment of escharotics*—especially of the actual cautery, being at the best only occasionally and temporarily beneficial, and ultimately highly pernicious. 4. *Pressure*, preceded by a styptic, early, accurately, uniformly, and yet moderately applied, the best local means of treatment. 5. *Irritants and cupping*, at some distance from the bleeding point, not unlikely to prove beneficial; the former by creating an inflammation in a comparatively unimportant part, and thereby increasing the amount of fibrin in the general mass of blood; the latter by averting the sanguineous determination to the source of hemorrhage. 6. *Careful avoidance of simply febrile accession*, which would have the effect of exciting the circulation, at the same time diminishing still further the amount of fibrin. 7. *Patient persistence* in the foregoing system, without abrupt

or frequent change of remedies. 8. In protracted cases, *nutritious, yet non-stimulating diet*. 9. Failing ordinary means, *transfusion* is to be attempted. 10. The question of *prophylaxis*, not irrational; the tendency being once known, its removal ought at least to be attempted.

Deafness cured by the endermic use of Morphia.—DR. HOEBEKE relates in the *Archives de Med. Belge*, the following case of deafness, the cure of which he ascribes to the endermic use of morphia. A lady had become so deaf after an attack of fever that she could not distinguish a word, unless it was bawled into her ear by applying the mouth close to it. But along with the deafness there was always an incessant noise in the ears—at one time like the hissing of boiling water, at other times like the roaring of a hundred voices together—which was often so distressing as to cause headache and confusion of ideas:—these feelings were always worse when the head was on the pillow. There was a quantity of wax in the ears; but no relief was obtained when it was removed. Nothing irregular could be perceived either in the ears themselves or in the throat. Leeches were applied behind the ears, and emetics and purgatives given; but no relief followed. Supposing that the symptoms might be dependent upon some anomalous state of the nervous apparatus, a blister was applied behind each ear, and the excoriated surface was sprinkled with half a grain of sulphate of morphia. By the next day the noise and deafness on the left side had quite ceased, and on the right were much abated:—the headache, too, had disappeared.

As the unpleasant feelings still continued on the right side, a second blister was applied and treated in the same manner as before, with morphia:—the success was decided, and the patient was quite freed of all her annoyances.

[We opine the blistering had quite as much to do with the cure as the morphia.]—*American Journal of Med. Sci.*

On Percussion.—By JOHN HUGHES BENNETT. Mediate percussion as employed by Piorry, is undoubtedly a more valuable means of diagnosis than is generally allowed. His experience, it is said, enables him to “map out, as it were, on the surface of the skin, with ink, the size and form of the heart, arch of the aorta, liver, spleen, kidney, &c.; and indi-

cate to the eighth of an inch, the exact height of pleuritic effusion, or the margin of circumscribed pneumonic dulness." At first sight this partakes too much of the marvellous; but when we know the length of time he takes to percuss a single patient, (half an hour,) we may suppose him to be a more expert operator than the generality of practitioners. The instruments he uses are, 1st. *The Hammer*: the head of which is made of steel, brass, or iron; a capsule is screwed to the end with a projecting disc of caoutchouc; the handle is made of wood, with depressions for the fingers and thumb. The head of the handle is not placed exactly at right angles with the handle, but has a slight obliquity upwards. "This is necessary, because in employing it the handle is almost certain to be somewhat elevated, and this slight obliquity even then allows the practitioner to strike the pleximeter perpendicularly." 2d. *The Pleximeter*: made of ivory, wood, or metal, with a handle at each extremity, to enable the practitioner to take hold of it more readily.

General rules to be followed in the practice of Mediate Percussion.—1. The pleximeter should be held by the projecting handles between the thumb and index finger of the left hand, and pressed firmly down upon the organ to be percussed. Much depends upon this rule being followed, as the sound and sense of resistance are considerably modified according to the pressure made by the pleximeter. A very easy experiment will prove this. If, for instance, the pleximeter be struck while it rests lightly on the abdomen over the umbilicus, and again, when it is pressed firmly down amongst the viscera, the change in tone will be at once perceived. In the first case a sound is produced, from the muscles and integuments being alone influenced by the force of the blow; in the second case, a clear tympanitic sound is occasioned from the vibration of the walls of the intestine. In every instance, therefore, the pleximeter should be so held and pressed down, as to render it, so to speak, a part of the organ we wish to percuss.

2. Care must be taken to strike the pleximeter fairly and perpendicularly. Unless this be done, vibrations are communicated to textures in the neighborhood of the organ to be percussed, and fallacious results are the consequence. If, in percussing the lungs, for example, the blow be made obliquely, we obtain the dull sound produced by the rib, and I have seen considerable error in the diagnosis thus occasioned.

3. A strong or gentle stroke with the hammer will modify the tone and sense of resistance, inasmuch as the impulse

may be communicated by one or the other to a deep-seated or a superficial organ. Thus a gentle stroke will elicit a pulmonary tympanitic sound just below the fourth rib, where a thin layer of lung covers the liver, but a strong one will cause a jecoral parenchymatous sound. At the inferior margin of the liver, on the other hand, where a thin layer of the organ covers the intestines, the reverse of this takes place, a gentle stroke occasioning a dull, and a strong one a clear sound.

4. By withdrawing the hammer immediately after the blow, we are better able to judge of the sound; by allowing it to remain a moment, we can judge better of the sense of resistance.

5. The integuments should not be stretched over the part percussed, as when the stethoscope is employed, for an unnatural degree of resistance is thus communicated to the hand of the operator from the muscular tension. In every case, especially where the abdomen is examined, the integuments and superficial muscles should be rendered as flaccid as possible.

6. It is always best to percuss on the naked skin. It is not absolutely essential, however, and in cases where, from motives of delicacy, it is desirable that the chest or abdomen be not exposed, it only becomes necessary that the covering of linen or flannel be of equal thickness throughout, and not thrown into folds.

Special rules to be followed in percussing the chest.—Percussion of the lungs generally bears reference to a change in density, which is only to be detected by comparing the healthy with the morbid portions. The great practical rule here to be followed, is to apply the pleximeter to both sides of the chest in succession, with the same firmness, exactly in the same situation, and let the blow with the hammer be given with the same force. Care must be taken that the position of both arms be alike, as the contraction of the pectoral muscles on one side more than on the other may induce error. In short, every circumstance must be the same before it is possible to determine in delicate cases, either from the tone or sense of resistance, whether change of density exist in the lungs. When circumscribed alterations are discovered in the pulmonary tissue, their limits may be marked out on the surface of the skin, in the manner previously indicated. In this way, I have frequently succeeded in determining with accuracy the size and form of circumscribed indurations, arising from partial pneumonia and pulmonary apoplexy. Under the clavicles, the pleximeter must be applied with great firmness. Inferiorly, a thin layer of lung lies over the superior surface

of the liver; and to determine the exact place where its inferior border terminates, the blows with the hammer should be very slight. Posteriorly, also, the pleximeter must be firmly applied, and the force of the blows considerable: but they should decrease in force inferiorly, where a thin layer of lung descends over the liver much deeper than anteriorly.

In a healthy state, a distinct difference may be observed in the sonoriety of the lungs immediately after a full expiration and a full inspiration. This does not take place when the tissue becomes indurated from any cause; and thus we are furnished with a valuable diagnostic sign. Congestion of the lung, and pneumonia in its first stage, causes only slight dulness and increased resistance, which, however, are readily detected by the practised percussor. In the second and third stage of pneumonia, and in apoplexy of the lung, this dulness and resistance are well marked, and even an impression of hardness and solidity communicated to the hand. When, however, the lung is studded with tubercles, the induration is most intense, and the greatest degree of resistance communicated.

Partial induration from pneumonia, apoplexy, or tubercular deposition, may be detected by percussion, even when deep-seated and covered by healthy portions of the lungs. In this case, by pressing with the pleximeter, and striking lightly, a tympanitic sound is only heard; but by pressing the pleximeter down firmly, and striking with force, the dull sound may be elicited and circumscribed. When induration, however, exists inferiorly in those portions of the lungs which overlap the liver, it requires great practice to detect them with certainty. Caverns in the lungs, when large and filled with air, induce a tympanitic sound; but they are generally more or less full of viscous and fluid matters, and give rise to dulness.

Two or three ounces of fluid may be detected in the pleural cavity, by causing the patient to sit up. It is readily distinguished posteriorly, from the dulness of the liver on the right side; on the left, however, the limit between it and the spleen is not so well marked. The height or level of the fluid is readily determined, and should be marked daily by a line made with nitrate of silver. If the effusion be only on one side, the peculiar humoral dulness is more easily detected. It disappears on placing the patient in such a position as will cause the fluid to accumulate in another part of the pleural cavity, when the space, which was previously dull, becomes clear. When the effusion entirely fills the pleural cavity, no

limit of course can be detected; but, even then, the dulness is distinguished from that of the liver by the diminished feeling of resistance.

When air is effused into the pleura, the sound is like that of a drum, and readily detected.—*Braithwaite's Retrospect.*

New Remedy for Scalds and Burns.—Mr. WM. RHIND recommends as a remedy for burns and scalds, a solution of gum-arabic, repeated coats of it being applied, so as to form a complete covering to the injured parts. He relates several cases in which he tried it, and states that in all relief was procured in a very short time. The more recent the case, however, the more speedy was the removal of the pain. In those cases where blisters had appeared they were opened, and the solution applied; very frequently the application of the solution prevented the effusion of more serum; in some cases, however, serum was again effused and again evacuated.

In those distressing cases of the extensive burning of the bodies of young children, Mr. R. states that he would not hesitate applying the solution over the whole body, at about the warmth of 96°. It does not cool down the system (he remarks) by sudden evaporation or sudden abstraction of heat, like a common cold fluid, a circumstance in most cases to be dreaded, for gum is a bad conductor of heat; neither does it preclude an exposure to moderately cool air, which seems to keep down the excessive irritation consequent upon extensive scalding of the skin.

As it is of consequence to have the solution prepared instantly, the powdered gum, if it can be procured, may be in a few minutes dissolved in warm water. If this is not ready prepared, the common gum in small particles roughly pounded, will very soon dissolve, and the application in any case may be applied at a temperature of 90° or 100°, although in general it is more soothing when applied colder. Rancid gum solution should not be used, as it in this state has lost its adhesive quality. Two, three, or four applications may be necessary at intervals of five or ten minutes. The skin should be previously freed of all oily matters, and the first coating, in order that it may be insinuated closely into the furrowed surfaces of the skin, should be rather thinner than the subsequent ones. In order to produce the proper effect it should

form a varnished coat of some thickness and closeness over the whole space of the burnt part.—*Edinburgh Med. and Surg. Journ.* Oct., 1842.

Analysis of the Menstrual Fluid.—BOUCHARDAT undertook a new analysis of the menstrual fluid, obtained from a female, who consented to allow a speculum to remain in her vagina for ten hours, in order that an ounce of it might be procured. Without this precaution the fluid becomes mixed with vaginal mucus and urine, as the presence of ammoniaco-magnesian phosphate proves. The following is the analysis: water, 90.8; fixed matters, 6.92. The fixed matters were thus composed; fibrine, albumen, and colouring matter, 75.27; extractive matter, 0.42; fatty matter, 2.21; salts, 5.31; mucus, 16.79. The female from whom the secretion was obtained was a patient of Boismont's, and he considers the great proportion of water due to the delicacy of her frame, and her subsisting chiefly on a vegetable diet. Another specimen of menstrual fluid, examined by Donn  , gave the following microscopic characters: 1st, abundance of the ordinary globules of the blood; 2d, vaginal mucus formed of epidermic squam   from the mucous membrane of the vagina; 3d, mucous globules furnished by the neck of the uterus. From these examinations it results that the menstrual fluid does not differ from arterial blood. As to the acid or alkaline nature of the fluid, observed by authors, it depends upon the presence of mucus from the vagina and neck of the uterus. This mucus, as Nauche has proved, is acid in a healthy woman and after delivery, but becomes alkaline when it is glairous, or the product of inflammation; if only a limited portion of the passage be affected, the secretion will be acid in one part and alkaline in another.—*Provi. Med. Journ.*, July 30, 1842.

Revivification of Microscopic Animalcul  .—MILNE EDWARDS read a report on a memoir of Doyere on this subject.

It is well known that when a few drops of water are sprinkled on moss which has been kept dry for months or years, certain microscopic animalcul   make their appearance; but it has not been decided whether these little animals are really brought to life again, or whether their ova had not

remained concealed in the moss, and were afterwards vivified.

Doyere has found that, with the assistance of the microscope, we can discover in the dried sand of rain-spouts a number of small bodies, which closely resemble the remains of these animalculæ, deformed through the effects of dessication. The author has taken these remains, carefully dried them on glass plates, and found that they were afterwards capable of being restored to life. On pushing his experiments further, the author found that, on applying heat at 145° or 150° Fahrenheit, the animalculæ were destroyed, and it was impossible to bring them to life again. But when they were previously dried, and all the moisture which they naturally contain was gradually expelled, they resisted a very great degree of heat; in some experiments the heat was carried to 120° C., and the animalculæ afterwards restored to life.—*Prov. Med. Journ.*, Aug. 27, 1842.

Corpora Lutea.—Dr. WM. DAVIDSON of Edinburgh, gives an account of three dissections of females, neither of whom was pregnant, and in each of which, corpora lutea were found. They had all the characters assigned to them by Dr. Montgomery; a central cavity or fibrous coagulum; an oval form, and a radiated white cicatrix in the centre, just about the central body; the body being at the same time *immediately* under the peritoneal coat. This last is much insisted upon by Robert Lee, as he avers that "*false corpora lutea* are never observed in immediate connection with the peritoneum, a small portion of stroma intervening." As to the females, the first had been in a weakly state for some years, during which time she had *no* children. The second was unmarried, and had menstruated three days previous to her death. There was no history of the third case, but all the organs were healthy and the fallopian tube and uterus were in every way natural. Dr. Davidson expresses his confident opinion, that in none of these cases had there been impregnation previous to the appearance of these bodies. He refers to Professors Allison, Allen Thomson, John Reid, and Mr. Goodsir, in proof of the correctness of his statement, and of their perfect resemblance to a true corpus luteum.

Dr. Davidson, as the result of his investigations, says, "I am led to believe, *that impregnation cannot take place without the*

appearance of a true corpus luteum, but that a true corpus luteum may appear independent of impregnation."—*Lond. & Edin. Month. Med. Journ.* Dec. 1841.

Signs of Maturity in new-born Children.—According to Chaussier, if a mature child be measured immediately after birth, the middle of its length will be exactly at the navel, or a very little below. It is, however, doubtful whether this happens in all cases; and Mende has impugned its general accuracy. The following are some results noticed by Mr. Taylor, Lecturer on Medical Jurisprudence at Guy's Hospital, and Dr. Geoghegan, Professor of Med. Jurisp. in the Royal College of Surgeons in Ireland.

Case.	Whole length.	Attachment of the Umbilical Cord.
1.	18½	a quarter of an inch below the centre.
2.	20	half an inch " " "
3.	17½	half an inch nearly " "
4.	16½	half an inch " "
5.	19	half an inch " "
6.	17	a little below " "
7.	18	exactly at the centre.
8.	17	exactly at the centre.
9.	20¾	a little below.
10.	19½	a little below.
11.	18¾	exactly at the centre.

Guy's Hospital Reports, April, 1842.

On a peculiar affection of the Cornea in Nurses. By Prof. NASSE.—A malignant form of keratitis or inflammation of the cornea occasionally accompanies puerperal attacks, and in general terminates fatally. This affection, however, is not of a malignant nature, and appears at any time during the whole period of nursing, from a month after delivery to a year and a half, if the child be suckled so long. The eye is felt irritable and the conjunctiva is seen injected with blood. Occasionally catarrhal symptoms attend the complaint, at other times little vesicles appear over the surface of the conjunctiva. Sometimes rheumatic symptoms are present, at other times it comes on with a vesicular cutaneous eruption over the face. The conjunctival inflammation rapidly passes to the cornea and is accompanied by the usual darting pains

in the eye and margin of the orbit. From the third to the eighth day an abscess forms within the layers of the cornea, when the inflammatory symptoms diminish, and if nothing be done to put an end to the complaint, it bursts into the anterior chamber and occasions hypopion.

The disease is not peculiar to any age, constitution, or season; but is in every case preceded by great lassitude, debility, and leanness, brought on by excessive lactation, in fact, seems to be a disease of debility. Blood-letting is consequently never indicated, but blisters behind the ears, diaphoretics combined with bitter infusions, quinine and sulphuric acid, a tonic diet, and above all, the giving up suckling the child, generally effect a cure in about three weeks. It is mentioned that the separation of the child is the most important part of the treatment; and cases are related where the child being allowed to suckle before the cure was completed, brought it back with increased severity, and could not be stopped till the child was again removed, when the disease rapidly gave way.—*Edin. Med. and Surg. Journ.*, July, 1842.

THE WESTERN JOURNAL.

Vol. VII.—No. I.

LOUISVILLE, JANUARY 1, 1843.

WESTERN METEOROLOGY.

While engaged, last summer, in a Medical survey of the valley of the Lakes, we made a visit to the *Western Reserve College* in the village of HUDSON, Ohio, and became acquainted with Professor Loomis. This gentleman is already known to such of our readers as cultivate the science of Meteorology, one of the most charming and useful of the various handmaids of Medicine. But we fear, that the number who have enlisted her into their service, is not great. Would that we could augment it—could impress upon all, the manifold advantages they could derive, in their aetiological inquiries, from the theoretical and practical study of the atmosphere; in which are concealed so many floating *semina* of disease; and whose varying states of heat and moisture, exert on the human constitution such decided effects, both for good and evil. Professor Loomis has made an extensive collection of meteorological instruments, of the exactest kind; and is most punctual, accurate and persevering in his observations on the temperature and weight of the air, the course and force of the winds at the earth's surface; the direction, form and extent of the clouds, and quantity of rain; the state of the hygrometer; and the dew point. It is only by such observations, cotempo-

ranuously made in various parts of our vast platform, from the Lakes to the Gulf, that the laws of our climate, and its influence in modifying our diseases, can be revealed. The professor showed us a respectable catalogue of collaborators, residing in various parts of the United States, with whom he exchanges printed transcripts of his observations, monthly; and assured us, that he would take great pleasure in augmenting the number of these exchanges. We hope this notice may be the means of adding many to his list. D.

TEMPERATURE AND DISEASES OF THE YEAR 1842.

Now that the calendar year 1842 has ended, we may affirm that it presented extremes between winter and summer, of much less than the usual extent; for while the former was one of the warmest, the latter was among the coldest we ever experience. This is true, we believe, of all parts of the west, from the Delta of the Mississippi, to the shores of Lake Superior. We may quote from Professor Loomis' Reports, that November and December, 1841, and January, February, March, and April of 1842, all had a mean heat *above* what belongs to them; while May, June, July, and August, were *below* their usual mean; finally, September was above it. Frost occurred in each summer month at Hudson, the place of his observations, N. lat. $41^{\circ} 14' 40''$, at an elevation of 1112 feet above the Ocean. Thus the climate of the west, during that year, so far as temperature was concerned, was much more assimilated to that of Europe, than we usually have it. Now, the phlegmasiæ of last winter, were as frequent and violent as usual; but from all that has reached us, the diseases of summer and autumn were few and mild. We know from personal observation, that the Lake shores were almost as healthy as the banks of mountain rivulets, having traversed them extensively in July, August, and September, within latitudes usually infested with summer and autumnal fevers; and, if not "finding none," scarcely meeting with specimens enough to present their characteristic features. The valley of the Ohio, was almost as free, and in the South there seems to have been an equal comparative exemption.

Here, then, is a cotemporaneous low temperature of summer and autumn, and a prevailing abatement of the epidemics of those sea-

sons? Do these agreeable phenomena stand in the relation of cause and effect?

We beg our readers, every where, to favour us with their observations on the heat, weather, and diseases of the year, to which these remarks relate; that we may bring them together, and see what conclusion will arise (or precipitate) from the play of their affinities.

D.

PNEUMONIA OF THE WINTER OF 1841-'2.

Many parts of the North, during last winter, were visited by a severe, in some instances malignant, pneumonia. Was it limited to these latitudes, or did it invade the middle and southern? If the latter, we respectfully ask for detailed information on its symptoms, treatment, anatomical lesions, and sequelæ, promising that the general results of the whole shall in due time be given to our readers.

D.

NORTHERN LIMITS OF MILK-SICKNESS.

We have not been able to hear of this disease further north than the southern shore of Lake Erie, between Cleveland and Sandusky city, in N. lat. $41^{\circ} 25'$. On various occasions, we have expressed the belief, that popular opinion, both in and out of the profession, has greatly exaggerated the frequency and importance of this *alleged* specific disease, and our late researches have afforded us no reason for retracting what we have said. After spending several weeks in regions of country reputed to be obnoxious to the malady, we left them without seeing a single case, although the period of the year was that of its recurrence.

D.

SNAKE-BITES.

A notice sometime since, that we were anxious to obtain information concerning the bites of our venomous snakes, has brought us several communications; some of which enclosed specimens of plants, said to be efficient remedies. We thank their authors, and solicit a continuation of their favors; but take this opportunity to say, that our object is rather to investigate the pathology of snake-bites, than

the remedies on which reliance, in different parts of the country, is placed for their cure. In reference to the former, several curious questions present themselves, to which we ask attention:

1. Are the bites of all our venomous snakes, from Michigan to Florida, equally pernicious?

2. Do they all generate the same symptoms, differing only in degree? Or are there characteristic peculiarities in the diagnosis of each?

3. Are any temperaments or idiosyncrasies a protection against the poison? What is the proportional number of deaths?

4. Does the wound ever inflame and suppurate?

5. Does the bitten limb swell in a few minutes, or within an hour or two, after the bite is inflicted?

6. When ecchymoses appear, what is the earliest period after the bite, and are these spots as common in the skin generally, as they are on the wounded limb?

7. From which of the mucous membranes is hæmorrhage most frequent, and in what proportional number of cases does it occur? And what is the character of the blood?

8. When death ensues, what are the *post-mortem* appearances, external and internal; and in what state is the blood, as to its colour and relative proximate elements? Does the body undergo decomposition earlier than usual?

9. Is there an annually recurring irritation in the bitten part, or in the constitution?

10. What domestic animals are proof against the poison?

11. Does the "Blowing Snake" or Hissing Adder (*Heterodon Platirhinos* of Holbrook) emit a poisonous vapour?

12. What is the most effectual treatment, for the bites of all our snakes? What is the *modus operandi* of ammonia? Does it act as an antidote to the poison, or by its stimulating properties remove the constitutional irritation?

The attention of our brethren, in regions where poisonous snakes abound, is respectfully invited to these inquiries. D.

THROAT DISEASE OF PUBLIC SPEAKERS.

At the annual meeting of the Medical Convention, of Ohio, at Cincinnati, in the month of May last, a committee consisting of Dr.

Børstler, of Lancaster; Dr. Sams, of Hillsborough; Dr. Fisher, of Waynsville; Dr. Warder, of Cincinnati; and the writer of this notice, Dr. Drake; was appointed to "inquire into, and report to the next Convention, on the causes and prevention of the *chronic laryngitis* of clergymen, and other public speakers."

Communications from physicians and other gentlemen, are solicited, and may be made to either member of the committee. For the purpose of directing the course of inquiry, of all who may feel able or disposed to advance it, we present the following interrogative suggestions:

1. Is not the fauces, or visible parts of the throat inflamed? And may not this inflammation sometimes precede that of the larynx which produces the flat and husky voice?

2. Is not the inflammation of the throat, in some cases, connected with a dyspeptic state of the stomach?

3. Is it not in others, associated, as a sympathetic affection, with chronic disease of the lungs, or of the lungs and heart?

4. Has it increased, with the decline of the use of alcoholic drinks, more or less resorted to, in former times, to allay the irritation, and remove the feeling of debility in the throat, *immediately* after speaking?

5. Is there any connexion of cause and effect, between the disuse of tobacco and the greater frequency of this malady, as suggested by Professor Mott?

6. Is it more frequent where coal is the principal fuel, than where wood is burnt? Do clergymen and other studious persons who sit near stoves, keep up evaporation from *non-metallic* pans, so shallow as to secure a copious humidity?

7. Are itinerant clergymen, and those who perform manual labor, as liable to the disease as the sedentary?

8. Are the Episcopal clergy, who read the liturgy of that church with studied inflexions of voice, and generally read their sermons, more subject to the disease than those who read but little in public, and extemporise their sermons?

9. Is the disease limited to the middle latitudes of the Union, or does it attack those who live on the borders of the Gulf and the Lakes?

10. Is it possible to arrest the absurd application of the term *bronchitis*, signifying an inflammation of the air tubes and cells of the lungs, to this affection of the organ of voice—the *larynx*?

We respectfully ask of newspaper editors, who may chance to meet with this article to extend its publicity. We would, also, solicit the secretaries of our different ecclesiastical conventions, conferences and assemblies, to have it read during their sessions of the present year, as a means of securing the attention of the class of men most interested in this investigation. We shall rely on our brethren of the medical press, to make it known to the profession beyond the limits of our circulation. D.

ABOLITION OF A RULE IN MEDICAL GRADUATION.—WILLOUGHBY UNIVERSITY OF LAKE ERIE.

The readers of the "Western Journal of the Medical and Physical Sciences," will recollect our former notices of this medical institution, situate in the north-east corner, if it can be said to have corners, of our great western valley. The village where it is established, lies eighteen miles east of Cleveland, on the bank of the little river Chagrin, (Chaguin?). While in that region we spent an hour within the walls of the University edifice, and saw three of its professors. We are enabled to say, that it has a good germinal assemblage of the means of medical education, that its last class amounted to 57, and that its Faculty is decidedly more able, at the present, than any past time. But our chief object is not to make these facts known, seeing that most of our readers live beyond the region whence that school looks for pupils.

What we aim to disseminate, is the fact, communicated to us by one of the Professors and also set forth in their last circular, that they have abolished the regulation, which allowed a four years practice to be equal, in reference to graduation, to a course of lectures. We look upon this as a decided improvement in the economy of western schools, and hope to see it adopted by all.

Where or when this rule was first incorporated into the code of regulations of our schools, we shall not stop to inquire. The first we ever heard of it, was in Transylvania University, on the revival of its medical department in 1819. In the succeeding year it was adopted by the Medical College of Ohio; some years after by the Willoughby school; in 1835, by the Cincinnati College; in 1837, by the Medical Institute of Louisville; in 1840, by the Medical Department of Kemper College, St. Louis; and in 1842, by the

Medical Department of the University of St. Louis. Thus it has, as they successively came into existence, been made a feature of all the schools of the west.

We do not question the propriety of this regulation, at the time, more than twenty years ago, when it was promulgated by the schools of Lexington and Cincinnati; for, as they were the first in the west, it embraced a great number of physicians who had, from the distance and difficult access of the schools of Philadelphia, New York and Baltimore, never attended lectures any where; and it was, perhaps, sound policy (we use the word in reference to the dignity of the profession) to allow such of them, as would attend one course of lectures, the privilege of becoming candidates for graduation. But the rule should have been regarded as applicable *only* to those who were *then* in practice, and ought to have been abrogated at the end of the first four years; that is, as soon as all who had *entered* on the practice previous to the time of its promulgation, had had the opportunity of availing themselves of its benefits.

The mischiefs arising from its continuance, have, we cannot doubt, been very considerable. Many who would have attended one course of lectures, *before* engaging in practice, have been induced to postpone it, till, by standing before the community as practitioners for four years, they could, on a single course, become candidates; and to shorten this probationary period, it is unquestionably true, that many have engaged in the practical duties of the profession, after a very brief period of office study, and consequently with most limited and superficial acquirements; which too often, have been but slightly extended during those years. With some honorable exceptions, when such "young doctors" come to our schools, they have travelled on the narrow and devious path, quite out of the region of rudimental facts and principles. Anatomy, physiology, chemistry and pharmacy, of which they know but little, are so far behind the practical rules and recipes of physic, surgery and obstetrics, upon which their minds have been directed, that they cannot be "turned back." They are unwilling to admit, even to themselves, that they have been going forth into society, as practical physicians and surgeons, ignorant of the elementary truths to which they find the junior students attentive; and, therefore, (again, with some respectable exceptions,) present themselves for examination, with many radical and incurable defects. It may be said, if they are not *well* prepared, let them be rejected?

But is not this a heartless remark? Is it not a serious thing, for him to be rejected after attending a course of lectures, who, for several years before he experienced that advantage, had been a practising physician; had acquired to some extent the confidence of his neighborhood; and might, withal, be a person of honorable dispositions? Is it not better, that our schools should apply a prophylactic? especially when a dash of the faculty-pen would effectually meet the case? Three consequences result from the present regulation, which we deprecate. 1. It encourages many to engage in practice, whose enrolment as members of the profession, necessarily derogates from its scientific dignity. 2. It exposes society to all the evils which come from uneducated and incompetent medical guardians. 3. It tempts not a few to engage in the study, whose preparatory education, and means of future acquisition are deficient; and of course excludes an equal number, who might be adequately prepared. And here the subject expands upon us, and we shall pursue it somewhat further; premising that we write without consultation with our colleagues of the Institute, who are in no degree responsible for the opinions we express.

It is a popular and amiable idea (if amiability can be predicated of an opinion), that medical education and graduation should be brought within the reach of poor young men; and so it should, if it can at the same time be made such as to maintain the scientific dignity of the profession, and supply the community with physicians and surgeons who are thoroughly acquainted with all that is necessary to successful practice. These latter considerations impose limits to facility of graduation, which cannot be passed, without trampling under foot the demands of the science and the safety of society. All regulations, then, which encourage young men, unendowed with academic learning and the means of prolonged and ample medical study, to engage in the latter, are unjustifiable.

This mistaken beneficence to indigent young men, is a real (though undesigned) depredation on great interests which should never be overlooked. In a comparison of these, where no claims of justice are involved, those of the majority should be respected; especially, when by doing so the minority will not suffer. Such would be the fact in the present matter; for it cannot be doubted, that young men who have neither the preparatory education, nor the means of adequate connexion with medical schools, would do better for them-

selves, by directing their enterprize (often of the most laudable kind) upon pursuits, for which they are prepared, and for which their limited resources would be sufficient. It is certainly better to be a good merchant, mechanic, farmer or lawyer, than a bad doctor.

The late period of the sessions of our schools, at which students are permitted to enter, is an evil that should be corrected. In some of them, the limit is the 20th of November, in others the 30th. In all propriety it should be the second, supposing the session to open the first, Monday of that month. Why should more than the introductory week be allowed? If the session is too long, let it be shortened; but no argument can be offered for not *requiring* students to be present at the opening of the regular lectures. Are not those of the first fortnight as important as any? We may, rather, ask whether the student who fails to hear *them*, will not be crippled in his intellectual movements, throughout the whole course? How can he get on, understandingly, without the *data* which are laid down in the seventy-two lectures delivered in that fortnight?

But we must say a word on the early departure, not less than the late arrival of pupils. In every school of the United States, of which we know any thing touching this matter, numerous students go home, before the expiration of the session—unfortunately, *criminally* short as it is. We have repeatedly seen young men in the month of February descending the Ohio river, on their return from the schools of the east; and not less from our venerable alma mater, than the younger members of the sisterhood. From every school of the West, they begin to depart by the end of the second week in February, and sometimes earlier. The rate of desertion augments with the time, so that by the end of the third week, the class is in a state of rapid decomposition, leaving for the fourth but a nucleus, which by the last Saturday is reduced so low, that the delivery of a valedictory becomes a ridiculous formality. Thus, from late matriculation and early departure, the majority of every class lose from a fifth to a fourth of the session. But the mischief is not confined to them. It extends to the more ambitious, conscientious and persevering pupils, who are disturbed and agitated by the movements of their friends and room-mates; so that, as every observing professor knows, all intense application is at an end, from the time the breaking up begins. We grant that the professors of a medical school cannot, like an academic faculty, look after and see that its pupils are punc-

tual in their attendance on the lectures; but it can be required, that all who intend to graduate, shall take with them at the close of the session, a ticket of dismission, as they receive one of admission when they enter. And why should not this be done? With a feeling bordering on sadness, we ask why it has not been done? Do the professors of our schools cherish no regard for the dignity or advancement of the noble profession confided to their guardianship? Do they think of nothing but the fees of tuition? Do they feel no responsibility to society? Will they continue to measure themselves by themselves, and look only to the *relative* attainments of their pupils; satisfied if they graduate none who fall beneath the low standard which harmonizes with an imperfect and superficial course of study? It may be said, that many young men are too poor to stay through the session; to which we reply, that all such had better not come, but devote themselves to other pursuits.

Let it not be said that if several of the facilities to matriculation and graduation in our schools, which now exist (but which we do not propose to enumerate at this time), were superseded by others, requiring higher preparatory attainment, longer professional study, and deeper scientific impregnation, there would be any deficiency of physicians. If it should a little diminish the aggregate number, it would increase the efficiency of each, and society would be better served, with less of that *downward* competition, which prevails not less among physicians than professors. The first and greatest effect of the new regulations would be, to invite to the study of medicine, those, and those only, who are well prepared by preliminary instruction, pecuniary means, talents and ambition, to make the profound and varied acquisitions in science, which are indispensable to the progressive improvement of the profession, and the safety and welfare of society. Many such are now excluded, because they see that superficial attainment, even without future study, may procure business; and not choosing to compete on such low ground, they turn to other pursuits. We *might* pursue this subject much further, and may resume it, at some convenient time. D.

SATURATED SOLUTION OF CORROSIVE SUBLIMATE IN ERYSIPELAS.

By a mistake, in preparing the index to our last volume, a valuable paper on this subject by Dr. Tripler, an army surgeon, was omit-

ted; and therefore will not, we fear, receive the attention it merits. When in Detroit, the Doctor assured us of the great efficacy of this solution, acknowledging himself indebted for the recipe, to the very respectable Dr. Pitcher, formerly of the army, but now a resident physician in that city. A scruple of the sublimate is dissolved in an ounce of rain or distilled water, and lint dipped in it is laid over the inflamed part, being extended a short distance upon the sound. It gives no pain, and arrests the inflammation with great promptness. Doctor T. has chiefly used it in the erysipelas of the scalp and face of soldiers, a frequent disease in the Detroit barracks, and in no case, as we understood him, did the malady subsequently attack the brain. We would, however, refer our readers to his paper in the last number of our last volume, to do which is the special object of this article.

D.

A DISCOVERY OF THE TRUE CAUSE OF THE DISEASE CALLED BY THE
PEOPLE TREMBLES OR MILK-SICKNESS.

This is the title of a pamphlet of forty-eight pages, from the Louisville press, laid on our table by its author, Mr. Ernst Heeringen. Our city is prolific in this milky literature—ourselves having led off in the spring of 1840; followed by Dr. Seaton, in a few months, with a production of nearly the same form and size; to which is now added a third, by Mr. Heeringen, bearing so much *prima facie* resemblance to our own, as to suggest the pleasing anticipation that we have founded a new school of medical literature. Our *followers* (if such they are) have, however, already got *before* us; as each has *discovered* the remote cause of this mysterious disorder—under which man turns *sick* and his domestic animals *tremble*. Unfortunately, however, our followers differ a *little*, as to the precise agent, one having ascertained that it is arsenic, the other malaria. So there they stand—“*Each claiming truth and truth*”—but we shall not finish the quotation, as we wish to treat all scientific inquirers with respect.

From the very dawn of the bright day of *conjecture*, which has so long beamed upon this subject, arsenic and malaria have been accused of what our rival authors have lately charged upon them; but although so often indicted, the profession have not yet declared them guilty. *Should* either of them be convicted, the present com-

plainants would have no very strong claims to the merit of discovery; except in the *evidence* by which the conviction was effected. Of Doctor Seaton's success, in presenting new testimony, we spoke at the time his pamphlet made its appearance; and are not aware, that he has since laid any thing conclusive before the profession. The style in which Dr. Seaton and his pamphlet are spoken of by Mr. H., shows that *his* "milk of human kindness" has got in it a small "sprinkle" of acrid poison. We extract a couple of paragraphs, as "a caution" to future speculatists.

"Dr. Seaton is also wrong, when he says, that cows that are well salted do not go so much to the springs, and therefore receive less arsenic. Now every farrier and almost every farmer knows, that salt purges gently, and dissolves, and thus proves a deductor of impurities contained in the *prima via*; but also they do know, that salting makes the animals drink more than they otherwise would have done. But I say, let the shoemaker stick to his last. For the correctness of this, I refer the reader to any good work on veterinary practice."

"Arsenic is one of the most powerful mineral poisons. Who will be surprised, therefore, when Dr. Seaton says, that, in giving to three cows sixty grains of this mineral in one day, and twenty-four grains at a dose, two of them died in forty-eight hours after receiving the first dose, and one of them was very near dead. But he has proved nothing else by this experiment, except, that arsenic is apt to kill cows—a thing which every schoolboy knew before; inasmuch as the calves that were sucking the cows during the time of these experiments never felt the worse for it, and the hogs and dogs that ate the flesh of the dead cows were nothing the less incommoded after their hearty meal. I would therefore take this opportunity to say, that it would probably have been much better if Dr. Seaton had made the above experiments previously, instead of making them after having frightened the community by his arsenic pamphlet."

If Dr. Seaton felt himself so much injured, by *our* former decorous citation of a few facts, which stood in the way of his adopted hypothesis, we fear he will be quite "out of patience" with Mr. Heeringen, to whose pamphlet we must devote the remainder of our article.

Mr. H. is a German veterinary practitioner, whose style is sufficiently accurate for the object he has in view, and whose inquiries into the diseases of our domestic animals, give him some fitness for the special investigation he has undertaken. We cannot, however, say quite so much for his logic. Having shown, as he conceives,

that Trembles neither arise from a mineral, vegetable, nor animal poison, he comes boldly up to the conclusion, that it *must* be produced by malaria. The argument is, that it exists, it has a cause, nothing else but malaria can produce it, and, therefore, malaria does produce it, *quod erat*, &c. It was in tracing its symptomatic analogies, however, that he got the first insight into its ætiology. These, as he informs us, place it under the head of Anthrax fevers (*febres ataxo adynamica*) of Dietrich. As a nosological appellation he proposes the following as “most proper.”

“Epizootica Americana aut Febris ataxo acutissimus cum caractere contagiose—or in English, Trembles—which is as good a denomination as any that could possibly be made use of. Milk-sickness, or sick stomach, should be baptized Epidemica Americana Secundaria.”

For the analogies by which our author, has, to borrow his own language, “established on philosophical principles the diagnosis of Trembles,” we must refer to the pamphlet itself; proceeding to state, what he has added to his a priori reasonings, from the *a posteriori*. This can be soon done, for we have not been able to find a single fact, or one, at least, not repeatedly urged by previous advocates of the miasmatic hypothesis. On this point, we were unpleasantly disappointed, for as he is evidently an observing man, and has spent much time among the farmers, on either bank of the Ohio, we had hoped, that he would have contributed some new observations of a valuable kind. It is but just, however, that he should be allowed to speak for himself.

“By analogy we have become convinced that Trembles are an epizootic malady; and by comparing their symptoms with those of joint murrain, according to Dr. Dietrich’s excellent work, we have proved that Trembles belong to the Anthrax family; we have further given ample proof, that Trembles are caused, neither by a vegetable nor a mineral poison, but on the contrary by epizootic or miasmatic impurities, and therefore leave this portion of our task, with the assurance that it will not be long, before all, that are interested in this matter, cheerfully agree, that our opinion is based upon truth and fact.”

This brings us to our authors means of prevention, which we are happy to say, even when employed but in part, have for many years, in all portions of the west, been found amply sufficient to prevent

the disease. As he is well acquainted with veterinary hygieen, we commend to our agriculturalists all that he has said; and will vouch, that if they carry out his directions, their cattle will not only remain free from Trembles, but some other maladies, which are the offspring of a negligent rural economy.

“Dr. Drake says, in vol. iv., No. v, p. 370 of the Western Medical Journal, that, when the cause of Trembles is discovered, the axe and plough will prove to be the only means by which the progress of the disease can be stopped.

“This assertion is based upon experience; but we know, from the statement of Mr. Walker Hawes and others, that the axe alone is sufficient to arrest the Trembles in a short time. However, farmers would do well to proceed as follows:

“*First.* All the trees that can be dispensed with, ought to be cut down and burned; so as to prevent their decaying in the place, and thus produce noxious malaria.

“*Second.* Others that are wanted ought to be deadened.

“*Third.* The buckeye, burr-oak, black-walnut, and maples ought to be cut down, principally, because their leaves do more damage than those of others.

“*Fourth.* In low and marshy places, all the trees without distinction ought to be cut down and burnt or deadened.

“*Fifth.* In dry weather, fire ought to be set to the leaves and wood lying about in the forest.

“*Sixth.* Dead animals ought to be buried immediately, and not suffered to impregnate the air with putrefaction, or to be eaten by hogs and dogs.

“*Seventh.* Farmers ought to salt their stock every day regularly; for the salt cools, dissolves, and opens their bowels, and thus frequently removes the causes of some diseases.

“*Eighth.* In districts where Trembles prevail, and during the sickly season, the milk-cow ought to be kept in a fenced lot, in which the timber has partly been deadened or cut down.

“*Ninth.* The springs ought to be kept clean, and an outlet for the water ought to be made: this will prevent the water from overflowing the ground in the vicinity of the spring.

“*Tenth.* Ponds must be fenced in, or the water drained off, if possible.

“*Eleventh.* Animals that are kept up where they cannot procure themselves water, must be watered regularly; and for this purpose a trough is best, set in the place where they are, and filled with good water.

“*Twelfth.* During the hot season, animals ought to be bathed; and where this cannot be done, they ought, from time to time, to be sprinkled with fresh water.

“Thirteenth. Every animal ought, once in a month, to be purged with glauber salts.

“Fourteenth. Animals must not be suffered to go to places that have recently been overflowed, or where there is a good deal of stagnant water.

“Fifteenth. When there are meal or honey dews falling, animals must be kept under fence.

“Sixteenth. Animals ought not to be permitted to lie out during the night, but kept in stables or under fence, from sundown until next morning.

“Seventeenth. It is of great advantage, if animals, in the hot season, are kept in shady places, and not exposed to the rays of the sun.

“Eighteenth. Cows ought to be bled at least once every summer.”

Our author has devoted two pages, at the close of his book, to the treatment of Trembles, which, he tells us, contain the results of his experience. They may be stated, to consist in bleeding, purging, rowelling, and the cold effusion, for the details of which we refer to the pamphlet itself.

We understand, that Mr. H. is a candidate for the premium offered by our Legislature, for the discovery of the remote cause of Trembles and Milk-sickness; and we sincerely hope he will continue his researches, until the results shall place it in his hands. D.

SCHOOL FOR THE BLIND.

It affords us great satisfaction to be able to announce, that the State, in connexion with our city, has established the school for the blind, of which we have already made mention more than once. It is now in actual operation, and cannot fail to grow, and prove a great blessing to a class of sufferers dear to the heart of every medical man; because their infirmity is the offspring of diseases of the eye, or of our mistakes in the treatment of them. Whether from one cause or the other, the blind are our beneficiaries, and we should labor for their education and comfort. In every county of the State, there are blind children and youth of both sexes, whose parents are ignorant of their capabilities, under appropriate means of instruction, and equally unacquainted with the character of the latter, so honorable to the inventive genius and benevolence of our age. It is the duty, as it should be the happiness, of physicians, to seek out such

families, and enlighten them in regard to a school, which ought to embrace all the uneducated blind of the State, and train them up to letters, music, and useful handicraft occupations. Letters requesting information concerning the school, may be addressed to Mr. Bryce M. Patten, who will promptly and cheerfully give all the information required. D.

THE MAMMOTH CAVE A WINTER RESORT FOR INVALIDS.

We understand that our enterprising friend, Dr. Croghan, continues unremitting in his efforts, to make this celebrated cavern a comfortable winter residence, for persons affected with pulmonary disease, and who are unable in autumn to migrate to the distant South. We have been told of a medical gentleman, who spent several months within it, and came out greatly relieved of a pulmonary disorder—the particular kind was not mentioned to us. We hope that other physicians, who may labor under affections of the lungs, and do not reside at inconvenient distances, will be induced to try its effects. Patients not of the profession, need not hesitate to go thither, on account of its involving a separation from their physicians, as Dr. Croghan spends most of his time there, and is well qualified to give them advice, although not now in the practice of his profession. D.

LITHOTOMY ON A MAN SEVENTY-EIGHT YEARS OF AGE.

As an encouragement to the aged to submit to this operation, not less than an item of passing surgical news, we may mention that Professor Gross lately operated on a gentleman 78 years old. This is an uncommon age for the operation, though it has often been successfully performed at that time of life. The diagnosis, on sounding, was a small calculus, which proved to be the case; but the operator discovered, immediately after its extraction, that others remained, but were encysted. With some difficulty the cyst was broken open, when upwards of fifty were brought away—averaging a cherry in size. As usual, in such cases, they had facets, worn by their attrition against each other. This nest had evidently not been detected by the sound. No bad symptoms followed, and the patient is now restored. D.

PROGRESS OF TEMPERANCE.

We hope all our readers take an interest, and “lend a hand,” in the extirpation of alcoholic intemperance, as one of the most fruitful sources of the diseases they are called to encounter. Our observations during the past summer, have convinced us, that there is a great and wide spread reduction in the quantity of alcohol lately consumed in this country. The reform, after having exerted its power in our garrisons to the north, has extended even among the Indians, many of whom have become total abstinents. In regard to the soldiers, Dr. Tripler, of Detroit barracks, informed us, in the month of August, that, from the 1st of November, 1841, to the 29th of April, 1842, a period of six months, through which the average number was two hundred and seventy-seven, there were six deaths, two from delirium tremens, and a third from general intemperate habits, making half of the whole; but from the 1st of May, to the 18th of August, there had not been a death. Temperance societies are now established in most of our garrisons, and in nearly every village of the whole country. Surely a signal abatement of disease will follow such a reform.

D.

TO PROFESSIONAL CORRESPONDENTS.

To prevent disappointment, we beg leave to say to such of our readers as may have occasion to address us on professional subjects, that as soon as our winter labours in the Institute can be brought to a close, we shall descend to the Gulf of Mexico, to spend several months in a medical examination of the maritime parts of Louisiana, Mississippi, Alabama and Florida. Should any of them, however, have a special reason for addressing us, the letter, if sent to Cincinnati, will be forwarded in such direction as to reach us. All communications designed for the Journal, must be directed to its Editors, and the superscription need not include the name of either.

Offering to our readers the compliments of the season, and hoping that their ledgers, on the 1st of January, may show fewer outstanding balances than generally disfigure and oppress a doctor's books, we bid them FAREWELL!

D.

MISCELLANEOUS NOTICES.

Medical News and Library.—A new candidate for public patronage, under this title, has just been started by Messrs. Lea & Blanchard, of Philadelphia. It is to be published monthly, and in addition to medical news, will contain series of Lectures on the principal branches of medical science. These lectures will have separate paging and constitute “a student’s library.”

Medical Examiner.—This journal has been changed from a weekly to a semi-monthly, and will be hereafter conducted by Dr. Clymer. Arrangements have been made for publishing “a regular series of Lectures by the prominent clinical professors in Paris.”

Wilson & Co., of New York, the publishers of what is called (*par excellence?*) “cheap literature,” have undertaken the republication of the *London Lancet*. The *Lancet* is edited (and was originally established) by Mr. Wakely, a member of the British House of Commons; it is of twenty or more year’s standing, and is in many respects a valuable periodical.

Dr. Reynell Coates, of Philadelphia, has started a literary and scientific journal entitled the “*Literary Age*.” Dr. Coates is favorably known, both in and out of the profession, as a polished and facile writer; we heartily wish success to his new enterprise. C.

THE
WESTERN JOURNAL
OF
MEDICINE AND SURGERY.

FEBRUARY, 1843.

ART. I.—*An Experimental and Critical Inquiry into the Nature and Treatment of Wounds of the Intestines.* By SAMUEL D. GROSS, M. D., Professor of Surgery in the Louisville Medical Institute.

[No. 2.—CONTINUED FROM PAGE 50.]

Having in the preceding number of the Journal discussed the nature, symptoms, mode of reparation, and therapeutic treatment of wounds of the intestines, I shall now proceed to speak of the different kinds of sutures. In studying this branch of the subject, the reader will be struck with the numerous and diversified expedients that have been devised for the management of this class of injuries.

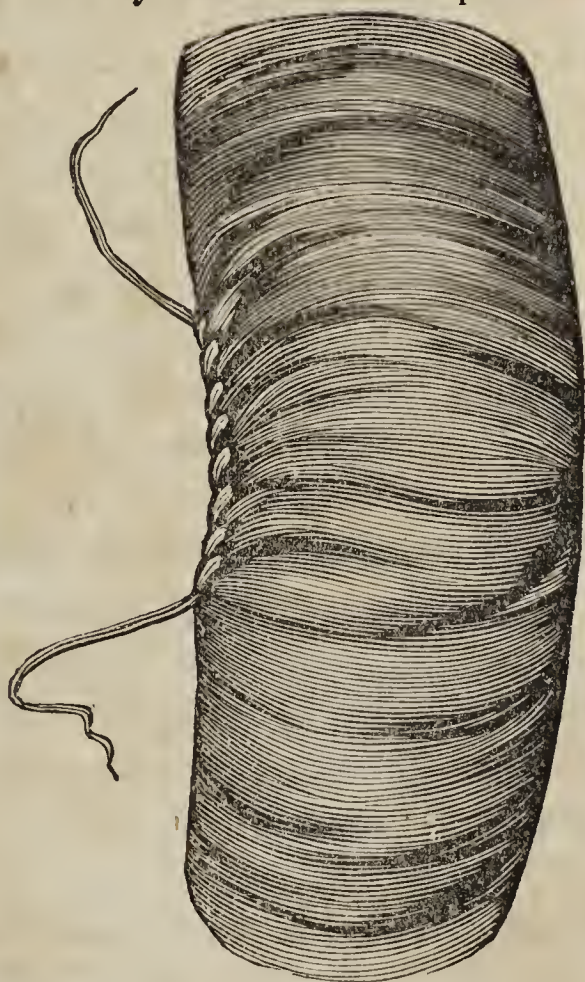
I.—*Continued Suture.*

The earliest suture employed for sewing up wounds of the intestines was the glover's, or, as it is generally termed by the French surgeons, the "suture du pelletier." It has also the name of the continued suture, and appears to have been extensively resorted to by the older surgeons in the management of common wounds. It was, however, long ago rejected in the treatment of injuries of this kind, and was for many years entirely abandoned even in cases of enteroraphy of the alimentary canal. Mr. Samuel Cooper, in speaking of this suture, observes that it may, in every point of view, be now considered as totally disused in every case of surgery which can possibly present itself. "When we remember," says he, "in making this suture, how many stitches are unavoidable; how unevenly, and in what a puckered state, the suture drags the edges of the skin together; and what irritation it must produce; we can no longer be surprised at its now being never practised on the living subject. It is commonly employed for sewing up dead bodies; a purpose for which it is well fitted; but for the honor of surgery, and the sake of mankind, it is to be hoped that it will never again be adopted in practice."* How far this sweeping denunciation is entitled to consideration, we shall endeavor to show in another part of this inquiry; it is sufficient, at present, to say that the glover's suture has, in my opinion, been unfortunately too long neglected, and that, when judiciously employed, it is capable of affording the most happy results in the treatment of intestinal wounds, no matter what may be their situation, direction, or extent.

The glover's suture is usually executed with a straight, round needle, armed with a single waxed thread, which is carried from within outwards obliquely from one lip of the

* Dictionary of Surgery, vol. ii, p. 331. New York, 1836.

wound to the other, until the whole track of it is sewed up. The instrument should be introduced throughout at the same distance from the edge of the breach, and the intervals between each two respective stitches must not be too great for fear of fæcal effusion. The thread, moreover, must not be drawn too tightly, otherwise the lips of the wound will overlap each other and have a puckered arrangement; an occurrence which, as it is calculated to interfere with the adhesive process, should be studiously avoided. In performing enteroraphy, the older surgeons were in the habit of leaving at each angle of the wound a length of thread equal to about five inches, which was brought out at the external opening, where it was secured by a strip of adhesive plaster, or by a small compress and bandage. In about six days the ligature was generally sufficiently loose to be withdrawn, or, if it was still pretty tight, the attendant cut it at the middle, and removed it by pulling gently at the ends. During this manœuvre great care was taken to give proper support to the external wound. As executed at the present day, the extremities of the suture are fastened either by a knot, or by passing them under an adjoining loop, after which they are cut off close to the surface of the bowel, into the interior of which the thread employed in the operation ultimately finds its way.



The experiments which I have performed to illustrate the use of the continued suture embrace the subject of transverse,

longitudinal, and oblique wounds, and amount altogether to seventeen in number. I shall detail them in the order in which they are here enumerated.

a.—*Transverse Wounds.*

EXPERIMENT I.—Transverse wound of the arch of the colon two inches in extent—continued suture—recovery.

After considerable difficulty I succeeded in drawing out of the abdomen a portion of the arch of the colon, into which I made a transverse incision two inches in length, and sewed it up with the continued or glover's suture. The dog was large, old, and made much resistance during the operation, which was attended with tolerably copious hemorrhage from the intestinal wound. The stitches were drawn very tight, to insure the more accurate apposition of the divided parts, and considerable violence was done to the omentum and surrounding structures, owing to the unusual restlessness of the animal. Notwithstanding this, he speedily recovered from the shock of the operation, was in excellent spirits the next morning, and had altogether a most rapid convalescence. On the eleventh day after the experiment he escaped from the room in which he was confined, as well, apparently, as if he had not been hurt.

EXPERIMENT II.—Transverse section of the ileum—continued suture introduced between the muscular and mucous coats—the animal killed on the twelfth day.

A tarrier was submitted to the same experiment as the preceding, with this difference, that the incision was made into the small bowel, and extended through the entire cylinder. The needle, moreover, was carefully conveyed between the mucous and muscular tunics, instead of through the whole of them, as was the case in the former operation. The wound was fourteen inches from the cæcum. The animal was permitted to live until the end of the twelfth day, when, the cure being considered sufficiently established, he was

killed. The small bowel and omentum were extensively glued together by plastic lymph, in a state of organization: the omentum projected into the outer, and adhered to the surface of the inner wound: the suture still retained its hold, though not every where in the same degree, and the villous edges were united by adhesive matter.

b.—*Longitudinal Wounds.*

EXPERIMENT I.—Longitudinal wound one inch long—continued suture—the animal killed at the end of two months and a half.

The subject of this experiment was a large dog several years old; he had fasted for twenty-four hours, and was perfectly well. The wound, one inch in length, was made along the convex surface of the ileum, a short distance from the cæcum, and sewed up with the continued suture with such firmness that nothing could escape through the interstices of the stitches. The day after the operation the animal was well, and continued so, eating and drinking with his accustomed avidity, until he was killed two months and a half after. The outer opening was perfectly healed with a portion of omentum in it. No adhesions existed between the bowels, or between these and the wall of the abdomen. Attached to the outer surface of the intestinal wound was a process of epiploon, which thus served to mark its situation, which it would otherwise have been difficult to detect, so complete was the reparation. The mucous part of the breach was beautifully cicatrized, a slight depression being the only thing out of the way, and the tube retained its normal dimensions throughout. Numerous tape-worms were seen in the small bowel. The various tissues and organs were loaded with fat.

EXPERIMENT II.—Longitudinal wound six inches in length—continued suture—the animal killed on the twentieth day.

The dog, as in the last experiment, was large and old. The

lower part of the ileum being withdrawn, I made an incision, six inches in length, along its convex surface, sewing up the whole of it with the continued suture. Considerable blood was lost during the operation, which was painful and protracted. The next day the animal was thirsty, looked stupid, and had occasional vomiting. Some blood, which had evidently proceeded from his wounds, was found on the floor of the room. On the third day he was quite cheerful, took some meat that was offered him, and from this time on he rapidly recovered. He was permitted to live until the twentieth day.

The outer wound was perfectly healed, with a small process of omentum intervening between its inner edges. The bowels were free from adhesions, except at the seat of the injury, where two folds were connected to each other and to a piece of the mesentery. On laying open the tube, a vertical fissure, three inches long by three lines in width at the middle, was discovered as the remains of the original wound. The bottom of the chasm was formed by a process of the mesentery, which was firmly attached to the exterior of the bowel, and exhibited a smooth, transparent appearance. The mucous lining was puckered, or thrown into numerous horizontal rugæ, like those of a ruffle, and along the edges of the fissure it was rounded off, elevated, and somewhat irregular. The caliber of the intestine was nearly a quarter of an inch wider than above and below the wound. All the other viscera were healthy, and the animal was in good condition. Every trace of suture had disappeared.

EXPERIMENT III.—Wound two inches long—continued suture—the everted mucous membrane pared off—the animal killed at the end of the third month.

The dog, the subject of this experiment, had fasted for twenty-four hours; he was small and several years old. The wound, situated five feet and a half from the ileo-cæcal valve, was two inches long, and united with the continued suture, the stitches being so near each other as to leave no chance for the escape of any thing through their interstices. The

everted mucous membrane was carefully pared away, and the whole returned in the usual manner. The recovery was rapid, and three months after the operation the dog was killed. The suture, indeed every trace of it, had disappeared, the breach being thoroughly repaired, and the continuity of the villous membrane re-established. A small process of the omentum adhered to the surface of the affected intestine, and another projected into the outer opening, but was in progress of absorption. The caliber of the tube was in no wise diminished. No adhesions existed between the different convolutions.

EXPERIMENT IV.—Longitudinal wound two inches in length—continued suture—the everted mucous membrane pared off—the animal killed at the end of a month.

The dog was small and about eighteen months old; the wound, situated within a short distance of the ileo-cæcal valve, and two inches in length, was closed in the same manner as in the preceding experiment, and the everted mucous membrane pared off on a level with the serous surface. The animal had been fed a few hours previously, and vomited several times immediately after he was removed from the table. The next day he appeared comfortable, and quarrelled with his comrades for his part of the rations. On the 21st of September, precisely one month after the operation, being rather lean, but in good health, he was killed. The omentum, as in the preceding case, adhered to the small bowels, and a process of it was prolonged into the outer wound, which was perfectly healed. There was no appearance of recent peritonitis; a part of the ligature employed in making the suture was still retained, but the wound was beautifully cicatrized, and the cure completely established. The caliber of the tube was natural.

EXPERIMENT V.—Longitudinal wound two inches long—continued suture with the everted mucous membrane pared off—the animal killed on the twenty-eighth day.

This experiment, as well as the next two, was merely a repetition of the preceding. The wound, situated four feet from the ileo-cæcal valve, was of the same length and treated precisely in the same manner, the everted villous membrane being cut off close to the peritoneal surface. The animal, small and rather young, was in good condition when he was killed on the twenty-eighth day. The post-mortem appearances did not differ materially from those observed in the preceding case. The outer wound was healed with a piece of omentum in it, and the inner was also nearly repaired, but the suture was only partially detached, being retained by a small slip of mucous membrane. There was no adhesion between the folds of the intestines, or between these and the wall of the abdomen, nor any contraction of the caliber of the tube. In short, the cure was complete.

EXPERIMENT VI.—Wound two inches long—continued suture—the everted mucous membrane pared off—the animal killed on the twenty-eighth day.

The subject of this operation was a small young slut; and the wound, not quite two feet from the ileo-cæcal valve, was treated as in the two last experiments. The next day a large piece of omentum, dark, bloody, and covered with dirt, was found protruding from the external wound; it was immediately encircled with a ligature, and excised. The animal, notwithstanding this untoward circumstance, speedily convalesced, and was allowed to live until the twenty-eighth day, when she was killed. The internal wound was nearly healed, but a part of the suture still remained, a few of the stitches not having ulcerated away. The larger part of the thread was lying loose in the bowel, incrustated with solid fæcal matter. The whole would probably have been detached in a few days. The small bowels were slightly united to each other

and to the omentum by plastic lymph, and the outer wound was thoroughly cicatrized. The animal had not lost any flesh from the effects of the operation.

EXPERIMENT VII.—Wound two inches and a half long—continued suture—the everted mucous membrane pared off—the animal killed on the tenth day.

The dog was large, several years old, and had fasted twenty-four hours. The wound, situated along the convex surface of the ileum, within two feet of the cæcum, was two inches and a half long, and closed as in the preceding experiments, the mucous membrane protruding through the interstices of the stitches being carefully pared away on a level with the serous surface of the bowel. About five ounces of blood were lost during the operation, which was somewhat protracted, owing to the inordinate resistance of the animal. The bleeding had not ceased when the bowel was returned. No untoward circumstance occurring, and the cure being considered established, the dog was killed on the tenth day. A large plug of omentum filled the external wound, the edges of which were already firmly united. The small bowels were extensively adherent to each other and to the epiploon; the suture retained its hold throughout the greater part of its extent, and a layer of lymph occupied the interval between the villous margins of the breach. The tube at the seat of the injury contained fæcal matter, and presented no contraction. The marks of acute peritonitis which generally supervenes upon a lesion of this kind, had entirely disappeared; or, rather, no more inflammation had existed than was necessary to effect the reparation.

EXPERIMENT VIII.—Wound one inch long—continued suture introduced between the mucous and muscular tunics—the animal killed on the fifteenth day.

Wishing to ascertain whether the edges of the wound could not be more perfectly approximated by carrying the needle between the muscular and villous tunics, or, in other words, through the cellulo-fibrous lamella, described in a previous part

of this essay, I instituted this and the following experiments.

Drawing a loop of the ileum from the abdomen of an old tarrier, I made a longitudinal incision, one inch in length, along its convex surface, not far from the cæcum, and sewed it up by carrying the needle, as just intimated, between the villous and muscular tunics. As had been anticipated, my expectations were not disappointed. The operation, without being more painful or protracted than when executed in the ordinary manner, had the effect of bringing the surfaces of the incision into the most perfect apposition. No severe indisposition followed, and the animal was permitted to live until the fifteenth day, when he was killed and his body carefully inspected. On laying open the bowel, which was closely attached to two adjacent coils, as well as to the omentum, the suture was found to be only partially detached, and to be incrustated with small nodules of fæcal matter. The continuity of the villous surfaces was re-established through the medium of a thin, narrow band of lymph, which was removed by maceration for two days in water. There was no abnormal redness either in the mucous or in the serous coat of the bowel, nor any contraction of its caliber. The continuity of the serous lips of the wound was unusually perfect. The outer opening was healed, a process of omentum being prolonged into it.

EXPERIMENT IX.—Wound one inch and a half long—continued suture introduced through the cellulo-fibrous lamella—the animal killed at the end of the thirty-fifth day.

The subject of this experiment, a large dog, several years of age, had fasted for twenty-four hours. The wound, occupying the inferior extremity of the ileum, was eighteen lines in length, and closed precisely as in the preceding experiment. The animal vomited several times within a few minutes after the operation, and appeared considerably exhausted. The next morning, however, he had recovered his wonted activity and cheerfulness, and rapidly convalescing, remained in good health until the thirty-fifth day, when he was killed.

The dissection revealed the following appearances. The outer wound was perfectly healed, and there was no adhesion between the bowels, or between these and the omentum, except immediately around the seat of the injury. No trace of suture was discovered; the villous edges had a rough, granulated aspect, and were united in the greater part of their extent; the wound was scarcely an inch long; the mucous membrane was free from inflammation; and the canal was of the normal dimensions. The dog was rather lean. All the other abdominal viscera were sound.

EXPERIMENT X.—Wound three-quarters of an inch long—continued suture introduced through the cellulo-fibrous lamella—the animal killed at the end of thirty hours.

The animal was a small but full grown slut. The wound, situated in the ileum eighteen inches from the ileo-cæcal valve, was nine lines in length, and closed in the same manner as in the last two experiments. The animal did not seem to mind the operation, and was well up to the moment she was killed thirty hours after. The object I had in view in destroying her so soon, was to ascertain the progress which nature had made towards reparation. The outer wound, closed by a plug of omentum, was feebly united by adhesive matter. Three knuckles of the small bowel were agglutinated by plastic lymph, of moderate firmness, with here and there a small ecchymotic speck. The epiploon covered the outer surface of the intestinal wound, and had a red, inflamed appearance for some distance around it. The edges of the villous membrane were of a pale lilac color, flat, and separated only by a very narrow, thread-like band of adhesive matter. There was no contraction of the bowel at the seat of the lesion, and no obstruction to the passage of fæcal matter. A drawing of this specimen was made immediately after it was examined. It was then immersed in dilute alcohol, which had the effect of depriving it in twenty-four hours of its red color, and of detaching the effused lymph.

EXPERIMENT XI.—Wound one inch long—continued suture introduced through the cellulo-fibrous lamella—the animal killed at the end of the fourth day.

Anxious to investigate this point a little further, I repeated the last experiment upon a large dog laboring under an attack of mange. He had fasted for eighteen hours, and bore the operation without a struggle. The wound was twelve lines in length, and situated in the inferior extremity of the ileum, within eleven inches of the cæcum. At the end of the fourth day, without apparently suffering from the effects of the operation, he was killed. The edges of the outer opening were pretty firmly united by adhesive inflammation with an intervening process of omentum. The omentum also adhered to the intestinal wound, as well as for a short distance around it; and the injured part was firmly glued to a neighboring convolution. The lymph which served as the connecting medium was of good firmness, and exhibited all the phenomena of incipient organization. The wound itself was reduced to nearly one-half its original length, and the edges, of a pale rose color, were separated by a thin narrow band of adhesive matter. The villous membrane presented no unnatural redness, nor was there any inflammation of the omentum, except in the immediate vicinity of the injury. No obstruction existed to the passage of the fæces.

EXPERIMENT XII.—Wound one inch long—continued suture carried through the cellulo-fibrous lamella—the animal killed at the expiration of forty-eight hours.

The subject of this experiment was a small young slut, four or five months old, which had been fed only a short time before the operation. The incision, an inch long, was made in the lower part of the small bowel, and approximated by the continued suture. She was killed at the expiration of forty-eight hours, having been previously in good spirits. The outer wound was somewhat tumid and but feebly united, a plug of omentum projecting into it. This apron-like membrane had likewise contracted extensive adhesions to the

surface of the small intestines, and exhibited all the evidences of high inflammation. The affected cylinder was intimately connected to the adjacent knuckles by plastic lymph, containing a number of small bloody depôts, and readily yielding under the pressure of the finger. On breaking up these adhesions the serous lips of the wound were found to be in close contact with each other, and to be thoroughly coated with the substance just mentioned. The villous edges were of a deep rose color, as was also the mucous surface for some distance above and below, and the ligature retained its situation throughout the whole line of suture; scarcely any lymph intervened between them, and they were perfectly smooth and regular. The bowel was not contracted or diminished in size.

c.—*Oblique Wounds.*

EXPERIMENT I.—Wound one inch long—continued suture introduced through all the tunics, except the serous—the animal killed at the end of the tenth day.

A small, full-grown dog, which had previously fasted, formed the subject of this experiment. The wound occupied the convex surface of the small intestine, three feet from the ileo-cæcal valve, and was closed by the continued suture, the needle being carried through all the tunics, excepting the outer. By this management the serous surfaces were brought into pretty close contact with each other. No untoward symptoms occurring, and the cure being considered established, the dog was killed at the end of the tenth day. The small bowels were extensively connected to each other, as well as to the omentum, and no little difficulty was experienced in finding the wound. The suture still retained its place, except at one extremity of the breach, where it was detached, and hung loose in the canal. The villous edges were somewhat rough and elevated, and intervening between them was a small, narrow band of lymph, interrupted at several points of its extent; the affected part of the tube was

of the natural dimensions; the abdominal wound was only partially healed; and a process of epiploon projected into it.

EXPERIMENT II.—Wound of the ileum three-quarters of an inch long—continued suture introduced through the cellulo-fibrous lamella—recovery—the dog killed on the twenty-second day.

The wound in this experiment was three-quarters of an inch long, and closed by the continued suture introduced through the substance of the cellulo-fibrous lamella. Its distance from the ileo-cæcal valve was about three feet. The dog, which was young and of middle size, made considerable resistance during the operation, which had the effect of producing some exhaustion, followed by vomiting immediately after he was removed from the table. The next day he was dull and drowsy, but from this time he gradually recovered, and lived until the twenty-second day, when he was killed, being fat and healthy. The small bowels were adherent to each other and to the omentum, but not in so great a degree as in the preceding case. A delicate process of the omentum was attached to the intestinal wound, the villous margins of which were in close contact with each other, their continuity being quite perfect at several points. The suture had ulcerated away, except at the upper angle of the wound, where it still retained a feeble hold. The bowel was of the normal size, and contained semi-fluid fæcal matter. The abdominal opening had healed without the intervention of the epiploon.

EXPERIMENT III.—Wound one inch and a half long—suture introduced between the muscular and mucous tunics—recovery—the animal killed on the seventeenth day.

A fold of the small bowel having been drawn from the abdomen of a large dog, twenty hours after he had taken food, an incision, one inch and a half in length, was made along its convex surface, and the edges approximated as in the last experiment. The animal bore the operation without much resistance, and experiencing no ill-effects from it, he was

killed on the seventeenth day. The appearance revealed on dissection did not vary materially from those in the preceding cases. The external orifice, only partially cicatrized, had a plug of omentum in it, and this membrane also adhered, though not extensively, to the convolutions of the small intestines. The wounded portion of the tube had contracted very firm adhesions to the mesentery, which thus served to re-establish its continuity. The villous margins, rough and slightly elevated, were in intimate apposition with each other, but the adhesion between them was easily destroyed, except at one point, where the connecting medium was more dense and more completely organized. The breach was not more than thirteen lines in length, unaccompanied, however, with any sensible puckering of the mucous membrane, or diminution of the caliber of the affected cylinder. The suture was loosened in the greater part of its extent, but only partially detached.

The results of these experiments are eminently favorable to the use of the continued suture, as not one proved fatal, although the wounds in several were of extraordinary length.* In eight the needle was carried through the whole thickness of the bowel, and in five, the everted mucous membrane was pared off on a level with the surrounding surface; in eight, the suture was introduced through the fibrous lamella, or between the muscular and mucous coats; and in one, through all the layers of the tube, except the peritoneal. It is worthy of remark that the caliber of the tube was not sensibly diminished by the operation in any of the experiments.

Of these three methods, that of introducing the suture through the cellulo-fibrous lamella is the least objectionable, as it enables us to bring the serous surfaces into more accurate apposition. When the needle is conveyed through all the tunics, there must necessarily be some degree of pucker-

*It is proper to state that three of the animals were killed too soon after the operation to render it at all certain that they would have recovered from the effects of it.

ing, whereby the mucous lining will be forced between the lips of the wound, if not beyond the level of the peritoneal membrane. By such an arrangement the adhesive process would be retarded, and if the stitches were to lose their hold, or if the bowel should not become glued to the neighboring parts, fæcal effusion might occur, followed by its whole train of evil consequences.

In making the continued suture I would, therefore, recommend that the needle be carried through the cellulo-fibrous lamella, or between the muscular and mucous membranes, and not across all the tunics, as is generally advised by authors. The lips of the wound should be held parallel with each other during the operation, and the stitches, drawn with considerable firmness, should not be more than a line, or, at farthest, the eighth of an inch apart. The needle is to be introduced a short distance, say half a line, from the peritoneal edge of the opening,* and brought out at the corresponding point on the opposite side. The first stitch should be one line from one angle of the wound, and the last about the same distance from the other, care being taken to secure each with a double knot, and to cut off the extremities of the suture close to the surface of the tube. The instrument which I prefer, and which I employed in nearly all my experiments, is a long, slender sewing needle, armed with a waxed and strong but delicate silk thread. The operation should be performed as expeditiously as is consistent with safety, and the bowel handled in the gentlest possible manner.

Mr. Travers, to whose name I have already so frequently referred, and who is one of the most able and influential advocates of the glover's suture, performs the operation with

* It should be recollected that in wounds of the bowels there is always considerable retraction of this membrane, by which the other tunics are exposed. Hence if the needle be introduced half a line behind the peritoneal edge of the opening, as recommended in the text, it will be at least the eighth of an inch from the mucous margin, and this will afford the surgeon a sufficient amount of substance to prevent any laceration, or breaking away of the stitches.

a small round sewing needle, armed with a silk thread, and passed near to the lines formed at the bases of the everted lips. The thread is carried at short and regular distances through the whole extent of the wound, the surgeon being mindful that an equal portion of the edges is included in each stitch. When the suture is finished, the ligature is securely fastened, and cut close to the knot. The reduction of the prolapsed fold, he adds, should be conducted with the nicest caution; and he recommends that the outer wound should be treated with a stitch, a plaster, or a poultice, as circumstances may dictate.*

In the management of injuries of this kind, Mr. Travers strongly insists upon the three following points; first, the accurate closure of the intestinal wound; secondly, the careful reduction of the protruded part; and thirdly, the union of the divided integuments. The treatment of the two wounds is thus made perfectly distinct, the internal suture falls into the bowel, and the whole process is materially simplified.

Another advocate of this suture, of no mean authority, was the late Baron Larrey, † whose experience was perhaps more extensive than that of any other surgeon that ever lived. His opportunities for treating wounds of the bowels in the human subject were unusually great, and he likewise performed a considerable number of experiments upon the inferior animals. After having made one or more incisions into the alimentary tube, in different directions, and in dogs of different ages, he united their edges by means of the "suture du pelletier," with the precaution of making it double, using alternately threads of different colors. He directs that the threads should not only be waxed, but anointed with mild cerate, to facilitate their introduction, and that they should be of sufficient length to be left hanging out of the abdominal wound. He advises that they should not be removed before the seventh day, and in some cases not even before

* Op. cit., p. 188.

† Surgical Essays, translated by Dr. Revere, p. 233.

the ninth. To extract them, it is only necessary to draw them gently in opposite directions, which may be easily done, as they are of different colors.

Sir Astley Cooper also speaks* favorable of the continued suture; but, like Larrey, he directs the end of the thread to be brought out at the external orifice, which is to be closed with great care. He thinks that cutting off the ligature near the bowel has a tendency to add to the danger of the patient, especially when there is a deficiency in the adhesive process; an opinion for which there is no just ground.

Mons. Velpeau† likewise prefers this suture, of which he has lately suggested the following modification:—In performing it, says he, the needle is carried obliquely downwards from the upper end of the gut over the outer surface of the lower, from which it is returned to within a line or two of the starting point, passed again to the lower lip, then back to the first, and so on alternately until it has traversed the whole track of the wound. To complete the operation nothing more is necessary than to draw in opposite directions the ends of the ligature, one of which will be at the origin, the other at termination of the suture. The object of this traction is to invert the edges of the wound and bring the serous surfaces into contact, but as this does not always answer, it may be proper to use a probe or catheter. The operation is finished by making a double knot. In mortified hernia, the ends of the thread, or even one of them, would be sufficient for retaining the bowel behind the ring, supposing it was not desirable to let it slip into the belly; and in this event the knot would also be unnecessary.

I shall conclude this subject with the following cases, which, so far as I know, are the only ones in which the continued suture was employed in the human subject, or, rather, in which the particulars have been communicated to the pro-

*Lectures, by Tyrrell, p. 497.

† *Medicine Operatoire*, T. 4, p. 138.

fession. From the antiquity of the operation, however, there can be no doubt that it has been often resorted to by practitioners, and it is to be regretted that our information respecting it is so limited.

CASE I.—Two perforations of the ileum with a knife—protrusion of the bowel—each opening closed with a continued suture—recovery in five weeks.*

Antonia Josie da Costa was stabbed, on the 3d of August, with a knife in the right hypogastric region, about three fingers' breadth above the pubic bone, the wound in the peritoneum being about nine lines in length. Through this opening a portion of the ileum protruded about ten or twelve inches, and presented two apertures opposite each other large enough to admit a finger. After clearing away the grumous blood, Mr. Peter Travers, a surgeon of Lisbon, who attended the case, closed each perforation with an uninterrupted suture, the ends of which were brought out at the external wound, which was sewed up in the usual manner. During the first four or five days after the accident, the man had severe pain in the abdomen, high fever, frequent vomiting, and hiccough. By repeated bleedings and clysters these symptoms gradually subsided, and towards the end of the fifth day he had a natural alvine evacuation. The internal sutures came away spontaneously on the twelfth of August, and on the seventh of September the patient was discharged in good health, the outer wound being entirely cicatrized.

CASE II.—Wound of the colon attended with the escape fæces—patient eighteen years of age—continued suture—recovery.

This case is reported by Glandorpius,† an old surgeon, but it is deficient in some important details, a circumstance which detracts considerably from its value. The patient was a young

* The Philosophical Transactions of the Royal Society of London, abridged, vol. xi., p. 73.

† Speculum Chirurg. Obs., 34—Travers, op. cit., p. 168.

man 18 years of age, and the wound, the size of which is not stated, occupied the colon, and permitted the fæces to escape externally. Glandorpius employed the glover's suture, and although the symptoms were for sometime of a very unpromising character, complete recovery ensued. In another case, in which the wound implicated the ileum, and was plentifully besprinkled with an astringent powder, the patient died of gangrene on the fourth day.

CASE III.—Two transverse wounds of the small bowel—continued suture—attachment of the mesentery to the outer opening by two ligatures—recovery in thirty-six days.*

An Austrian soldier, in a scuffle with one of his comrades, was stabbed with a knife in the right side of the abdomen, about an inch above the umbilicus. The wound was transverse, about three inches long, and gave vent to a very considerable quantity of the small intestines. The patient being immediately conveyed to the Hotel-Dieu at Châlons-sur-Marne, Mons. Charliar, the surgeon-in-chief, discovered that the protruded gut was divided in two places; at one, in about one-half of its circumference, and at the other, about one-fifth. Passing a loop of thread through the mesentery behind each injured knuckle, he sewed up the wounds with the continued suture, and returned the whole into the peritoneal cavity. The two sutures were maintained near the edges of the outer opening, by means of the threads in the mesentery, which were fastened by an appropriate bandage to the surface of the abdomen. Emollient fomentations were applied to the belly, and the patient was kept in the semi-erect posture by pillows placed behind his back. For a month the most rigid regimen was observed. The ligatures were withdrawn at the end of a few days, as soon as it was found that the intestine had contracted firm adhesions to the inner surface of the wall of the abdomen. The outer

* Dictionnaire des Sciences Medicales, T. 43, p. 48.

wound cicatrized rapidly, and the patient left the hospital perfectly cured on the thirty-sixth day.

CASE IV.—Large sabre wound of the ileum—extensive protrusion of the small bowel—escape of stercoraceous matter—patient twenty-three years of age—continued suture—complete recovery in less than seventy days.*

The subject of this case was John Baptist Jolin, about twenty-three years of age, a fusileer in the sixteenth regiment of the guard. While playing with one of his comrades, he fell by accident upon the point of his sabre, which he held unsheathed in his hands, and which made a deep wound in the abdomen. He was carried to the neighboring village of Pucteau, where Mons. Carré sewed up his wounds. The external opening, about fifteen lines in extent, occupied the lower part of the right side of the abdomen, and gave vent to a large portion of the ileum which was already tumefied. "I examined the protruded bowel," says Mons. Carré, "and found a large wound, attended with a discharge of stercoraceous matter, which obliged me to make a suture at this point, immediately after which I returned the intestine into the cavity of the abdomen, dressed the parts, and sent the patient to the Hospital of the Guards at Paris." During the journey, which was tedious, he vomited copiously, and had one bloody stool.

On removing the dressings, immediately after his arrival in Paris, a portion of the small intestine, which had become prolapsed during the journey, and presented a swollen appear-

* I am indebted for this and the following case to Baron Larrey. The first is recorded in his *Surgical Essays*, edited by Doctor Revere; the other in his *Memoirs of Military Surgery and Campaigns of the French Armies*, translated by Dr. Hall of Baltimore, (vol. ii. p. 387.) Although it is not positively stated that the suture employed in these cases was the continued, yet there is strong reason to believe that it was, both from the size of the wound, the nature of the operation, and the decided preference which he has expressed for this method in different parts of his writings.

ance, was returned into the cavity of the abdomen without much effort. The patient, however, was not relieved. He was extremely weak and anxious, and had frequent vomiting of bilious matter, accompanied with violent colicky pains, tenesmus, and small bloody stools. On visiting him in the morning, Baron Larrey unbound the wound of the integuments and the opening made by the sabre in the aponeurosis of the great oblique muscle, when he discovered that a considerable quantity of blood had been effused into the peritoneal cavity, and that several of the convolutions of the intestines had already become united to each other. He therefore contented himself, although the symptoms of strangulation still remained, with evacuating the extravasated fluid, and dressing the wound with a linen rag, spread with styrax ointment, the whole being secured by a suitable bandage.

For thirteen days the symptoms were of the most violent character, and the patient was only saved by repeated dry and moist cupping of the abdomen, followed by camphorated embrocations and anodyne cataplasms, and finally by the application of blisters, with the use of enemata and the most rigid abstinence. At this period a small ligature, about three inches and a half long, was discharged through the external wound, and there was immediately a striking amelioration of all the symptoms. The patient grew better and better; the wound of the abdomen soon cicatrized; and in less than seventy days from the accident he was completely cured.

CASE V.—Two sabre wounds in the colon—extensive division of the mesentery—hemorrhage into the peritoneal sac—continued suture with the ends brought out at the the abdominal opening—death on the seventh day from inflammation and gangrene of the peritoneum and intestines.

A grenadier was wounded with a sabre in a duel, on the right side of the umbilical region. A considerable portion of the small bowel protruded across the opening, and presented a reddish brown appearance; it was inflated, and contained a collection of worms. The patient suffered much pain

and distressing anxiety; the pulse was small and thready; the countenance ghastly; and the extremities cold. In this state he had been seven hours when he was brought to the hospital. Baron Larrey immediately dilated the abdominal opening, to relieve the strangulation, and to examine the other portions of the tube to see whether it was injured. He found the small curve of the colon wounded in two places, and the mesentery extensively divided by the sword. Having extracted the worms, which were still alive, with a pair of dressing forceps, he introduced a suture through the lips of the wounded intestine, and after bathing it with warm wine, reduced it, taking care to retain the ends of the thread on the outside. A considerable quantity of black clotted blood escaped at this stage of the operation, showing that effusion of this fluid had taken place in the abdomen. The lips of the external wound were approximated by a compress and roller. The patient was conveyed to bed, and took two grains of opium in sweet wine, which allayed his suffering and promoted reaction. The next day the abdomen was painful and tender to the touch; the urine was suppressed; the skin hot, and the thirst urgent. The edges of the outer wound had separated, but presented nothing remarkable. He died on the seventh day from inflammation and gangrene of the peritoneum and intestines.

On dissection the portion of bowel, formerly protruded, was found nearly of the natural appearance. The edges of the inner wound were agglutinated to each other, while those of the mesentery lay in folds, being united by adhesive substance, so that it was impossible for any alvine matter to escape into the peritoneal sac. The pelvis and interstices of the viscera were occupied by black and decomposed blood. Extensive adhesion existed among the different organs; the lower part of the ileum was sphacelated at several points; and the superior mesenteric artery was divided near its origin. But for the latter injury, it is highly probable, as has been remarked by Baron Larrey, that the man might have survived the wounds in the intestines, and finally recovered.

II.—*Interrupted Suture.*

It is not easy to determine, at this remote period, when, or by whom, the interrupted suture was first introduced to the notice of the surgeon. There can be no doubt, however, that it has been in use almost from time immemorial. The manner of performing it is too well known to require any mention in this place. The following experiments and observations will sufficiently illustrate the value of this suture in the treatment of wounds of the intestines. The former are arranged, in reference to their direction, into three classes, namely, into transverse, longitudinal, and oblique.

a.—*Transverse Wounds.*

EXPERIMENT I.—Complete section of the small bowel—four interrupted sutures—the ends of the threads cut off at the knots—death from peritoneal inflammation in forty-five hours.

Having opened the abdomen of a large dog after he had fasted for twenty-four hours, I drew out a fold of the small bowel by means of a blunt-hook, and divided it as far as the mesentery. The edges of the wound were then brought together by four interrupted sutures, placed equidistant from each other, and the ends cut off close to the serous surface. The whole being returned into its natural situation, the outer opening was united by two stitches, and the animal allowed water but no food. The operation was performed at eleven o'clock in the morning. In the afternoon the dog was sick at the stomach, threw up water several times, and lay quietly on his side. His thirst was not urgent, nor did he seem to suffer much pain. The next day he was dull and heavy, with occasional vomiting; his breathing became short and laborious, and he died in a state of coma forty-five hours after the experiment.

The following appearances were observed on dissection.

A process of omentum, very red and slightly adherent to the surrounding parts, projected into the outer opening, the edges of which were united by lymph. The peritoneal sac contained a pint of sanguinous fluid, and was universally inflamed. Three knuckles of the small bowel adhered to each other, and the wound was every where covered with plastic lymph, except at one point, three lines long, where the closure was imperfect, and where there had evidently been an escape of alvine fluid. The mucous membrane at the wound was slightly everted and rounded off, and exhibited all the evidences of high inflammation. The bowel above the seat of the injury was obstructed with fæcal matter, of a solid nature, produced apparently by a palsied state of the muscular fibres, and not by any contraction of the canal.

EXPERIMENT II.—Section of the entire cylinder of the bowel—seven interrupted sutures—recovery—the animal killed on the seventeenth day.

A small slut was submitted, September 4th, to the same experiment as the preceding, with this difference, that the wound was closed with seven interrupted sutures instead of four, about two lines from each other. She bore the operation well, and lived without any untoward symptoms until the seventeenth day, when she was killed. The external wound was beautifully healed, and a considerable quantity of adeps was found beneath the skin of the abdomen. There was no adhesion of the bowel or omentum to the parietal portion of the peritoneum, and the internal wound, situated within a few inches of the ileo-cæcal valve, was in great measure healed; three of the sutures, however, still retained their hold. No evidence of inflammation was discoverable at the seat of the injury, and the tube had undergone no contraction.

EXPERIMENT III.—Transverse wound embracing three-fifths of the cylinder of the small bowel—three interrupted sutures—the ends of the ligature cut off near the knots—recovery—the animal killed near the end of the third month.

May 23, I divided the small intestine eighteen inches from the ileo-cæcal valve three-fifths across, making a wound about fourteen lines in extent, the edges of which were brought together by three interrupted sutures, at equal intervals from each other, and the ends cut off as in the preceding experiment. The animal, which was healthy and of moderate size, had been fasting for twenty-four hours. No blood was lost during the operation, from the effects of which he speedily recovered. On the 16th of August, being in good condition, he was killed, and the body carefully inspected. The outer wound was perfectly cicatrized, as was also that in the bowel. The latter, however, was somewhat rough on its external surface, from the attachment of a small narrow process of the epiploon, which was partially ulcerated, and would doubtless in a few days more have lost its entire connexion. Internally the reparation was beautifully perfect. No adhesion existed between the bowel and the wall of the abdomen, or between any of the intestinal convolutions.

EXPERIMENT IV.—Transverse wound occupying four-fifths of the circumference of the tube—four interrupted sutures—the dog killed on the ninth day.

In this experiment, which was performed on a middle-sized dog after he had fasted for eighteen hours, the small bowel was cut four-fifths across, three feet and a half from the ileo-cæcal valve, and the wound united by four interrupted sutures, equidistant from each other. One end of each ligature was brought out at the external opening, and the other cut off close to the knot. The animal rapidly recovered from the shock of the operation, and lived until the ninth day, when he was killed. The protruding ligatures were detached, and the edges of the external opening firmly united, with a small process of omentum intervening between

them. The internal wound was partially cicatrized, and exhibited well marked traces of the situation of the sutures. The parts immediately around were rough and knobby, from the presence of lymph and adherent omentum; but there was no abnormal vascularity or evidence whatever of inflammatory action. The bowel contained fæcal matter, and was as large as natural. The animal had not lost any flesh.

EXPERIMENT V.—Transverse section embracing five-sixths of the intestinal cylinder—four interrupted sutures with both ends cut off—the animal killed in three weeks.

The subject of this experiment was a small pup not more than five or six months old. The small bowel was cut five-sixth across, and the everted mucous membrane pared away on a level with the peritoneum. I then passed the needle through all the coats of the intestine, hoping thereby to approximate more completely the serous surfaces. In this, however, I found myself mistaken; for no sooner did the instrument enter the muscular lamella than violent contractions ensued, producing fully as much eversion as before. Four interrupted sutures, with the ends cut off close to the peritoneal surface, were employed, and the whole returned within the abdomen. The dog became sick a short time after the operation, and had repeated vomiting; but he gradually recovered, and escaped, at the expiration of the third week, in good health.

EXPERIMENT VI.—Semi-division of the bowel—two interrupted sutures with one end protruding—the animal killed on the thirty-sixth day.

On the 10th of August, I opened the abdomen of a tarrier slut, and cut the small bowel half across, three feet from the ileo-cæcal valve, sewing up the wound, which was about three-quarters of an inch in length, with two interrupted sutures, one end of which was left hanging out at the external opening. The animal experienced apparently very little inconvenience from the operation, and

was killed in good health on the 16th of September, or the thirty-sixth day after. The external wound had healed without the intervention of the omentum, which, however, adhered to several intestinal folds. The internal wound was beautifully cicatrized; all trace of suture had disappeared, and there was no mark whatever of recent inflammation, either in the serous or mucous tissues. The tube was of the normal size.

b.—*Longitudinal Wounds.*

EXPERIMENT I.—Longitudinal wound two inches long—four interrupted sutures—the ends of the ligatures cut off near the peritoneal surface—the animal killed after the third month.

An incision, two inches in length, being made along the convex surface of the ileum, a little more than a foot from the ileo-cæcal valve, I approximated the edges with four interrupted sutures, equidistant from each other, and cut off the ends close to the peritoneal surface. The dog, which was large and old, lost a good deal of blood during the operation, and the wound was still bleeding, though not freely, when I returned the bowel into the abdomen. He rapidly recovered from the effects of the injury, and continued in excellent health until he was killed on the 22d of September, upwards of three months after the experiment. The epiploon adhered to the surface of the bowel, and a small process projected into the outer wound. The interval wound was perfectly cicatrized, so much so, that some difficulty was experienced in determining its situation: two coils of the intestine were united together at the seat of the injury. The dog was fat, and all the viscera were free from disease.

EXPERIMENT II.—Longitudinal wound one inch long—four interrupted sutures—the ends of the ligatures brought out at the abdominal opening—the animal killed on the twelfth day.

A large healthy dog, having fasted for twenty-four hours, was subjected to the same experiment as the preceding, with

this difference, that the wound was only one inch long, and that the ends of the ligatures were brought out at the external opening. Nothing unusual occurred after the operation, which he bore with comparatively little resistance. On the twelfth day, being considered out of danger, he was killed. The abdominal wound was cicatrized throughout its entire extent with the intervention of a plug of omentum, a small mass of which also adhered to the injured bowel. The latter was slightly agglutinated to several of the neighboring coils, and on laying it open the villous portion of the breach was found to be well repaired, the edges being rounded off, and connected by plastic lymph. The tube at the seat of the lesion contained alvine matter, and was of the natural diameter. No inflammation was observable either in the serous or mucous coat. It should have been stated that all the ligatures were detached on the sixth day.

EXPERIMENT III.—Longitudinal wound one inch in length—four interrupted sutures—the ends of the ligatures cut off close to the knots—the animal killed on the twenty-second day.

This experiment was merely a repetition of the last. Instead, however, of bringing the ends of the ligatures out at the abdominal wound, they were cut off close to the peritoneal surface. The dog was small but full-grown, and had fasted for twenty-four hours. He bore the operation remarkably well, appeared very sprightly soon after it was over, and drank a considerable quantity of water. No untoward symptom arose, and he continued perfectly well until the twenty-second day, when he was killed. The appearances on dissection were found to be essentially the same as in the cases already mentioned. A piece of omentum was attached to the entire surface of the intestinal wound, the reparation of which was unusually perfect. All trace of suture had disappeared, and the continuity of the villous surface was, in a great degree, re-established. There was some adhesion between the neighboring folds of the small bowel, and a process

of the epiploon was prolonged, as usual, into the abdominal wound.

EXPERIMENT IV.—Longitudinal wound five-eighths of an inch long—two sutures with the ends brought out at the external wound—recovery.

The subject of this experiment was a small dog four or five years old. The wound, five-eighths of an inch in length, was made, as usual, along the convex surface of the bowel, and closed with two interrupted sutures. The ends of the ligature were twisted together, and left hanging out at the external opening. The animal bore the operation well, and was apparently in perfect health a few hours before his escape, which happened at the end of the ninth day.

EXPERIMENT V.—Longitudinal wound half an inch long—one suture with the ends cut off at the knot—the animal killed at the expiration of the seventh day.

From the abdomen of a large slut I drew a fold of the ileum within fifteen inches of the ileo-cæcal valve, and making a longitudinal incision along its convex surface, six lines in length, I closed it with a single suture, the ends of which were cut off at the knot. No untoward symptom arising, and being considered past all danger from the operation, she was killed at the expiration of the seventh day. The outer opening was pretty well healed, with a portion of epiploon adhering around its inner margins, as well as to the surface of the intestinal wound, and to several neighboring knuckles. The suture had disappeared, reparation was going on beautifully between the villous edges, and the bowel, containing fæcal matter, had experienced no change in its caliber. The quantity of lymph poured out by the peritoneal surface was very small, as was proved by the trifling nature of the adhesions. The dog was fat, and had lost no flesh from the operation.

EXPERIMENT VI.—Longitudinal wound half an inch in length—one suture with the ends cut off close to the knot—death on the eleventh day from causes apparently unconnected with the operation.

This experiment was merely a repetition of the last. Although only one suture was employed, it seemed to have the effect of closing the opening completely. The dog, which was very small and not more than three or four months old, bore the operation exceedingly well, and had no untoward symptoms prior to his escape, which took place three days thereafter. He remained at large until the eleventh day, when he was met in the immediate vicinity of the dog-house in a paroxysm of convulsions, in which he was knocked on the head and killed. On dissection I noticed the following appearances. The outer opening was perfectly healed, except at one or two points, with a small slip of omentum prolonged into it. No peritoneal inflammation was observable any where; the bowels did not adhere to each other or to the abdominal walls; the ligature was detached; and the continuity of the affected portion of the tube was re-established by a process of the epiploon, which was firmly attached around the wound for some distance. The edges of the latter were one-third of an inch apart at the centre; the mucous membrane was not at all red or inflamed; and the small intestine was empty and blanched. What caused his convulsions I could not determine.

c.—*Oblique Wounds.*

Only two experiments were performed with a view of illustrating the treatment of oblique wounds by the interrupted suture, and of these the following synopsis must suffice.

EXPERIMENT I.—Wound six lines long—two interrupted sutures through the cellulo-fibrous lamella—the animal killed at the end of the third week.

The dog, old and of large size, had fasted for nearly twenty-four hours. The wound was made along the convex surface

of the small bowel, opposite the attachment of the mesentery, and about twenty inches from the ileo-cæcal valve: it was six lines in length, and closed with two interrupted sutures carried through the cellulo-fibrous lamella. The ends were cut off near the peritoneal surface. Nothing worthy of notice occurred after the operation, and the dog, being in good health, was killed at the expiration of three weeks. On opening him I found that both sutures had disappeared, leaving merely a slight circular depression which served to indicate their former situation. The mucous portion of the wound presented a linear or fissured aspect, and might be said to be in great measure cicatrized. The serous surface had contracted firm adhesions to the mesentery, and the tube retained its normal dimensions. The omentum adhered slightly to the small intestines, and a process of it was prolonged into the outer wound, which was completely consolidated.

EXPERIMENT II.—Wound one inch and a half in length—five interrupted sutures—the ends of the ligatures cut off close to the knots—the animal killed upwards of a month after the experiment.

The animal was small, but full-grown, and the wound, eighteen lines in length, was united by five interrupted sutures, equidistant from each other. The ends were cut off close to the knots. The wound, as in the foregoing experiment, occupied the inferior extremity of the ileum. The dog soon recovered from the shock of the operation, and was killed one month and three days after. The sutures had all disappeared, and the wound was neatly cicatrized throughout, excepting at two or three small points, where the edges were somewhat elevated and puckered. It had diminished nearly six lines in length. The tube was slightly contracted at the seat of the injury, but not sufficiently to interfere with the transmission of the alvine matter. Externally the bowel adhered firmly to two adjacent convolutions, together with a fold of the epiploon. The abdominal wound was entirely healed.

Of the foregoing experiments, two were fatal, death being

produced in one by peritoneal inflammation, in the other without any obvious cause. The suture was carried through all the tunics in thirteen, and in one through the cellulo-fibrous lamella. In ten, both ends of the threads were cut off close to the peritoneal surface; in two, they were brought out at the external opening; and in the remainder, one extremity was cut off, and the other secured to the surface of the abdomen.

The most important circumstances to be observed in making this suture in wounds of the bowels are, to carry the needle through the cellulo-fibrous lamella, and to place the stitches sufficiently near each other to prevent the escape of fæcal and other matters. It will be perceived that in some of the above experiments the interval between the stitches was as much as four or five lines, and yet no effusion occurred. Such a practice, however well it may answer in the inferior animals, is certainly inapplicable to the human subject, whose safety should never be jeopardized by inattention to the dictates of sound experience.

It will be seen that in these experiments, as in those with the continued suture, the caliber of the intestinal tube was not seriously diminished in a single instance. Indeed, in nearly all the cases in which the parts were examined, it was quite as large at the seat of the injury as in the natural state.

I subjoin the following cases in which the interrupted suture was employed in the human subject. Taken in connexion with the experiments just detailed, they exhibit an array of success highly favorable to this method of treatment.

CASE I.—Extensive wound of the abdomen, with complete division of the ileum, and penetration of the thoracic cavity—four interrupted sutures—recovery in a month.*

Henry Cooper, seven years of age, had his belly ripped open by a boar on the 23d of August, 1815, soon after eating a small piece of bread and bacon with two apricots.

* Edinburgh Medical and Surgical Journal, vol. xii, p. 27.

Nearly the whole of the abdominal viscera, the stomach, a large portion of the intestinal canal, the mesentery, and omentum were protruded through an immense wound on the left side of the median line. The ileum was completely severed, the omentum was lacerated through its entire extent, and a rent an inch long existed in the mesentery. On the left side of the chest was a lacerated wound five inches long, communicating with the cavity of the chest, and complicated with fracture of the fifth and sixth ribs. The wound in the wall of the abdomen commenced about an inch below the antero-superior spinous process of the iliac bone, from which it reached, in an oblique direction, to the right side of the ensiform cartilage of the sternum. Mr. Calton, surgeon at Collingham, brought the edges of the intestinal wound together by four interrupted sutures, made with a small curved needle and a double silk thread. A firm hold was taken by carrying the instrument through all the tunics of the gut, and each ligature was cut off close to its knot. The omentum was returned without any other attempt to approximate its divided edges than laying them together. The wound of the abdomen was secured by sutures and adhesive straps, supported by a broad bandage.

For the first forty-eight hours after the occurrence of the accident there was great restlessness, high fever, tenderness and tumefaction of the abdomen, and irritability of the stomach. On the twenty-fifth the boy vomited up some undigested ham, two apricot-stones, and several lumbricoid worms, with great mitigation of his symptoms. The following day he had a copious liquid evacuation from his bowels, from the administration of a dose of castor-oil, aided by an enema of sulphate of magnesia. The external sutures came away on the twenty-ninth and thirtieth of August, and in a month the wounds were perfectly cicatrized. The little patient was of course much emaciated, and the wall of the abdomen, at the original seat of the injury, was so thin as to allow the peristaltic action of the intestine to be plainly seen through it.

CASE II.—Four wounds of the small bowel with injury of the omentum—treatment by the interrupted and continued suture—recovery in a fortnight.*

An athletic young man, twenty years of age, in carelessly handling a scythe, on the 26th of August, 1836, with the point turned towards the body, accidentally pierced his belly a little above the left of the umbilicus, inflicting a longitudinal wound five inches in length externally, but not quite so extensive within. The omentum was perforated and the jejunum opened in four places. One of the wounds in the latter reached nearly entirely across the gut, the second rather more than one-half, the direction of both being transverse: of the other two, one was a mere puncture, yet sufficient to allow the escape of fœcal matter, while the other, which was a longitudinal slit, was two inches in length. A large mass of the small intestines, a portion of the colon, and the omentum protruded through the outer wound, and were found, nearly four hours after the accident, covered with dried blood and fæces, the latter of which had issued in considerable quantities. The patient was in great suffering, his symptoms resembling those of strangulation of the bowels, which, indeed, was the case. After thoroughly cleansing the protruded viscera with tepid milk and water, Dr. Aquila Toland, of Madison county, Ohio, who attended the patient, brought the lips of three of the wounds together by the interrupted suture, made with broad linen threads. The large transverse cut was treated with the glover's suture, that is to say, the two small needles which he used for that purpose were passed alternately from one side to the other between the mucous and muscular tunics, the former being pushed back and excluded from the ligature. The parts were then returned into the abdomen, having previously somewhat enlarged the outer

* Western Journal of the Medical and Physical Sciences, vol. 10, p. 481.

wound, the edges of which were next brought into apposition and retained by the quilled suture. Two days after the operation a small process of omentum was discovered in the lower angle of the external opening, upon pushing back which, a copious discharge of bloody pus occurred, followed by great relief of the hypogastric distention. On the thirty-first of August the patient had, for the first time since the accident, a free evacuation from the bowels; on the fourth of September, all unfavorable symptoms had disappeared; and in a fortnight the outer wound was nearly cicatrized.

CASE III.—Perforation of the small bowel by the horn of an ox—interrupted suture—dilatation of the abdominal wound—complete recovery.*

William Kemble, twenty-one years of age, of spare habits, a butcher by occupation, was gored in attempting to slaughter an ox, December 11th, 1832, the horn penetrating the abdomen just above Poupart's ligament. Through this opening about six inches of small intestine protruded, which was at the same time strangulated. On examining the gut it was found to have been completely perforated by the animal's horn, which had entered it on one side and come out at the other, producing consequently two apertures, capable each of admitting a finger. No fæces had escaped, nor had there apparently been much hemorrhage. Mr. J. D. Davids, a surgeon of Cowes, being called to the case, immediately brought the lips of the larger wound together with two sutures, and those of the smaller with one, the ends of the ligatures being cut off close to the knots. He then attempted to return the bowel, but found this impracticable without dilating the external wound, which was accordingly done with a probe-pointed bistoury. The outer opening was closed with sutures, supported by straps of adhesive plaster. For the first few days there was considerable restlessness, with vomiting and tenderness of the abdomen. On the fifteenth

*Medico-Chir. Review, vol. xx, p. 182.

some oil was given by the mouth, which acted very well on the bowels, and from this period he went on progressively improving. One of the sutures only made its way out through the wall of the abdomen, the two others fell into the intestinal canal, and were passed with the fæces. Complete recovery ensued.

CASE IV.—Oblique wound of the small intestine, three-fourths of an inch long—four interrupted sutures with the ends cut off close to the peritoneal surface—recovery in five weeks.*

M. Sullivan, aged twenty-six years, a native of Ireland, was admitted into the New-York Hospital, under the care of Dr. Buck, on the 17th of August, 1840, with a stab in the abdomen, received an hour before in a quarrel. The external wound, which was situated on the left of the median line, midway between the pubes and umbilicus, was an inch long, and gave vent to several knuckles of small intestine, in one of which was an oblique cut three-fourths of an inch in extent. The protruded parts were of the natural warmth and of a deep red color; the patient was faint and restless; he had frequent vomiting, with insatiable thirst; and the pulse was weak and small. Four sutures of fine silk thread were introduced into the inner wound; they included all the tunics of the bowel, and the ends were cut off close to the knots. Reduction was then attempted, but did not succeed until the outer cut was dilated to the extent of half an inch at its upper edge. The outer wound was then united with two sutures and adhesive strips, the whole being supported by a broad bandage. During the first day ten ounces of blood were taken from the arm, and four dozens of leeches applied to the abdomen. On the 18th the patient was comfortable; there was pain, however, on pressure at the seat of injury; and towards evening, the pulse having increased in force and tension, the venesection was repeated to

* New-York Journal of Medicine and Surgery, No. 8, April, 1841.

twenty ounces. On the 19th he made several fruitless attempts at stool, and the belly became tympanitic and somewhat swollen; for these symptoms a large blister was applied, and an emollient enema administered. On the 23d of August he was leeches on the right iliac region, and from this period his convalescence was completely established; the bowels moving spontaneously or by the aid of injections, and the tenderness disappearing from the abdomen. The external wound healed kindly, partly by the first intention; and in about five weeks he began to sit up. His recovery, however, was retarded by an attack of inflammation of the chest, and effusion into the cavity of the peritoneum. These gradually yielded to appropriate treatment, and he left the hospital on the 28th of October.

CASE V.—Two incised wounds of the small intestines, each more than half an inch long—interrupted suture—recovery in a fortnight.*

Ezekiel, an athletic negro, aged thirty years, in a night broil, was wounded in the arm and abdomen with a knife, the latter injury involving one of the small bowels, which was cut in two places to the extent of more than half an inch. Several branches of the mesenteric artery were divided and bled freely. The bowel protruded through the wound. Having washed off the coagulated blood, the divided vessels were included in fine silk ligatures; “after which,” says Dr. Yandell, “the openings in the gut were each closed with the same species of thread, but whether more than one stitch was used, I am not able, at this distance of time, to say.” In two weeks the man had so far recovered that it was no longer necessary to visit him.

* I am indebted for the above case to my friend and colleague, Professor Yandell. As it occurred more than ten years ago, and no notes were taken of it at the time, it is not so circumstantially reported as could be desired.

The following cases, although they had an unfavorable termination, throw additional light upon this important subject. They occurred in the practice of Sir Astley Cooper, and are recorded in his great work on the *Anatomy and Surgical Treatment of Abdominal Hernia*, edited by C. Ashton Key, Esq.

CASE I.—Strangulated crural hernia in a woman fifty years of age—mortification of the ileum, and excision of the affected part—three interrupted sutures with the ends protruding through the outer orifice—artificial anus—death on the fifth day after the operation.

A woman, fifty years of age, had been laboring under strangulated crural hernia from the first until the eighth of November, when Sir Astley Cooper was requested to visit her for the purpose of performing an operation for her relief. Her features at this time were anxious and collapsed; the pulse was one hundred and thirty a minute; there was great thirst; the abdomen was distended and tender on pressure; the bowels had been obstinately constipated for more than a week; there was frequent vomiting of a yellowish fluid, of fæculent odor; and the tumor was red, hard, and exquisitely painful to the touch. Having laid open the hernial sac, a quantity of liquid fæces immediately escaped from it, which was found to have proceeded from a large circular opening of the ileum, with dark, thickened, and everted edges. After the stricture was fully divided, he cut away the mortified piece of bowel, which was about two inches and a half long, and joined the two fresh ends by three sutures, leaving a small aperture for the evacuation of fæces, and confining the ligature which passed through the back part of the tube next the mesentery to the mouth of the hernial sac. The external wound was closed in the usual manner, except at one point for the passage of alvine matter. She died on the morning of the 12th of November, every thing that she swallowed having in the mean time been speedily discharged at the groin. The integuments over the artificial anus were of a livid color, but not mortified, and she had no passage

since the attack. On dissection the protruded part of the tube was found to be firmly glued to the inner side of the sac, and the small bowel above this point highly inflamed throughout. The stomach was pale and contracted; the large intestine was free from disease; and there was no effusion of fluid into the peritoneal cavity, nor any adhesion of the abdominal viscera.

CASE II.—Strangulated crural hernia—patient sixty-eight years old—mortification of the bowel—excision of the affected part—three interrupted sutures with the ends protruding through the outer orifice—artificial anus—death in ten weeks.

This case was likewise one of crural hernia; the patient was a female, sixty-eight years of age, and the strangulation had existed for five days. When Sir Astley Cooper saw her, on the 31st of July, she had repeatedly vomited, and there was slight hiccough, with a small and frequent pulse. The tumor was much inflamed, and pitted under pressure. After exposing the bowel, he discovered that it was mortified to the extent of about three-quarters of an inch, and that there were two holes in it, one of which was large enough to admit the blunt end of a probe. Both apertures were of a circular form, and readily permitted the escape of fæcal matter when pressure was applied to the adjoining portions of the tube. With a pair of scissors he cut away the sphacelated piece, and then united the parts by three sutures. The divided edges bled freely, but the hemorrhage was checked when the ligatures were drawn together. The intestine was then pushed as near as possible to the mouth of the hernial sac, and the threads left hanging from the wound. The protruded omentum was cut off, and the external opening every where closed, except at the centre, to allow of the escape of fæcal matter, should it be disposed so to do.

On the second day after the operation a large quantity of liquid fæces passed from the wound, and in a short time afterwards the artificial anus appeared to be fully established the opening into the bowel being large enough to admit the

finger. From this time until the twenty-third of September the case presented nothing of any particular interest. At this period the wound was very much contracted, the hole in the bowel was greatly reduced in size, and all discharge of fæces had ceased, owing, as was supposed, to her having eaten some rabbit and roasted apple. She vomited, and the belly became distended. After remaining in this state for forty-eight hours, a large alvine evacuation took place from the wound; but her strength gradually declined, and she expired on the 9th of October. On opening the body, the abdomen was found free from inflammation. The lower part of the ileum formed the artificial anus. The large bowel was much contracted, and contained only a little mucus. The orifices of the intestine were both very small, the lower much more so than the upper.

Who can doubt that the last case would have recovered, if it had been properly managed? Had a few more points of suture been used, the formation of an artificial anus would have been prevented, and nature effected speedy reparation. As it was, the continuity of the tube was interrupted, and when the external opening became greatly reduced in size, as it did a short time before death, obstruction with its whole train of evils was the necessary and inevitable consequence. Even in the first case it is not improbable that recovery might have taken place, if the divided parts had been approximated in such a manner as to prevent the establishment of an artificial anus. During the four days which the patient survived, every thing she drank passed by the preternatural opening, the bowels below remaining in the meantime obstinately constipated. It is true the inflammation might have extended too far before the operation was performed, but this is a mere conjecture, and does not invalidate the belief that, had the wound been carefully sewed up, and the continuity of the canal re-established, restoration might have occurred.

3.—*Method of Ramdohr.*

This method derives its name from Ramdohr, an eminent German surgeon, who flourished at the commencement of the last century. It consists in joining together the two ends of the divided bowel by introducing the upper within the lower, and fixing it there by means of a suture, the extremities of which are brought out at the opening in the abdomen. Ramdohr, I believe, was the only surgeon who, until recently, performed this operation on the human subject; his patient, a female, was affected with strangulated crural hernia, and, although he removed two feet of mortified intestine, perfect recovery soon ensued. About a year subsequently to the operation she died of an attack of pleuritis, when the bowel was carefully inspected, and the two ends were found to be beautifully united to each other and to the wall of the abdomen. The preparation was sent to Professor Heister, of the University of Helmstadt, who preserved it in alcohol,* and published an account of it in his *Institutes of Surgery*. To facilitate the invagination, Ramdohr recommends the division of a small portion of the mesentery along the concave surface of the tube, and the insertion of a piece of candle.

*“Et excisa magna intestinorum parte corrupta, binas partes extremas, eademque sanas, superiori inferiorem insinuata, leniter per injectum filum conjunxit. In abdomen reposuit, filique circumducti ope ad vulnus abdominis attraxit; atque ita non modo efficit ut cum vulnere confervesceret, et ad glutinationem quod mirum videri poterat, intestinum divisum perveniret, sed feminam quaque velut ex ipsis mortis faucibus retraheret, fœcibus postea non per vulnus, sed per anum egredientibus. Mulier illa postea sana vixit; at post annum ex pluritide abiit, atque in inciso cadavere intestina divisa inter se rursus coalita deprehensa sunt: quæ ipsæ mihi una cum parte abdominis cum qua coaluerunt, dono dedit; ea que adhuc in spiritus vini asservo, ut dubitantibus aut discentibus ea semper attendere possim.”—Heister, *Institutiones Chirurgicæ*, T. i., p. 768, in 4to.

The objections to this procedure are, first, the impossibility of distinguishing the upper from the lower end; secondly, the difficulty of effecting the invagination; thirdly, the tardy and imperfect adhesion from a serous surface being placed in contact with a mucous; and fourthly, the danger of hemorrhage from the division of the mesenteric arteries. I shall examine these objections in detail.

The difficulty of distinguishing the two ends from each other is always great, if not absolutely impossible. One of the most important signs enumerated by authors is the disproportionate contraction of the inferior extremity. This occurrence, however, although it may occasionally happen, is, nevertheless, exceedingly rare, and cannot therefore be depended upon. I have seldom noticed it in my experiments, and the same remark has been made by others. The contraction is sometimes more conspicuous in the upper than in the lower end, sometimes it is entirely wanting, and in some instances it is nearly equal in both divisions. Professor Bérard of Paris, who was called to a female who had cut out two feet of her small bowels, relying upon the certainty of this sign, was unwittingly led into the error of inserting the inferior into the superior orifice, as was shown by the autopsy, the patient dying in thirty-six hours.*

Louis proposed the administration of a small quantity of olive-oil, to promote the peristaltic action of the alimentary canal. The alvine matter above the seat of the injury would thus be evacuated through the superior orifice, and so lead to its detection. This is, however, to say the least, a tardy and uncertain procedure, and one to which few practitioners of the present day would be likely to trust. Where the stomach is oppressed, as it almost always is in wounds of the bowels, with nausea and vomiting, no medicine, however mild, would be likely to be retained sufficiently long to pass the pyloric orifice. Granting, however, that it might reach the bowel, a number of hours would necessarily elapse before

* London Lancet for 1835-'6, p. 45.

it would produce the desired effect. In the meantime the patient would be subjected to the pain and hazard resulting from the exposed condition of the protruded viscus, which should always be returned as speedily as possible; for the longer this is delayed the greater will be the risk of severe peritonitis and the probability that the patient will die from the shock of his wounds. But I need not dwell upon this proposal, as it is altogether unlikely that it will be carried out by any practitioner of the present day.

A recent writer, Mons. Jobert, of Paris, observes* that in a sphacelated hernia the escape of the intestinal contents would show which was the upper end; while, in the case of division by a wound, the method suggested by Louis would be the best, especially if the oil were mixed with some coloring substance, as syrup of violets or orchanet. "In order to distinguish," says Professor Cooper, "the upper end of the intestine from the lower, the proposal is sometimes made to give the patient a little milk, and to observe whether the fluid, after a time, issues from the mouth of the protruded gut."†

Some diversity of sentiment still exists in respect to the absolute necessity of distinguishing the two ends from each other. Jobert thinks it of paramount importance, on the ground that if the inferior be inserted into the superior it will lead to inversion and obliteration of the tube, followed by death from inanition; in proof of which he refers to an experiment by himself on a dog in which this result actually happened. On the other hand, there is now on record at least one example in which the reverse occurred in the human subject. Such, at all events is the probability, for as the patient recovered no decisive examination could of course be made. I allude to the case mentioned by Dr. Pitcher, to which I shall hereafter refer in connexion with Ramdohr's process, and in which the lower portion of the small bowel was inserted into the upper. "I did this," observes Dr.

* Op. cit. T. i, p. 85.

† Dict. Surgery, p. 503. New-York edition.

Pitcher," because the lower end had been already, by the butcher's knife, freed from its connexion with the mesentery, in which I found the chief impediment to this mode of junction. The peristaltic contractions occasioned by handling the bowels embarrassed the operation very considerably, but that difficulty was overcome by the manner of passing the ligatures already described."*

In respect to the difficulty of effecting the invagination there is hardly a practical writer that does not fully concur in it. It has been already stated, in a previous section, that when a bowel is completely divided, there is not only retraction of its extremities but also a certain degree of contraction, by which the caliber is sometimes diminished one-half or even two-thirds, or, rather, I might say, almost entirely obliterated. Now any attempt under these circumstances to insert the superior end into the inferior, provided it was always possible, which, as we have just seen, it is not, to distinguish them from each other, would inevitably prove abortive, unless the parts were most forcibly dilated, and even then it would be almost impracticable. Of the truth of this abundant evidence has been furnished me by my own researches, multiplied and repeated as they have been in a great variety of ways and in numerous instances. If any further proof, however, is needed it is only necessary to refer to the experiments of Mœbius, a cotemporary of Ramdohr, and to the more recent ones of Dr. Smith and Mr. Travers, before adverted to, in which they uniformly failed to accomplish this object. "Having divided," says Smith, "the intestine of a dog transversely, I attempted to treat it in the manner spoken of by Mr. Ramdohr, namely, by introducing the upper extremity within the lower; after having procured a piece of candle, as directed by him, it was inserted into that portion of the intestine which was supposed to be the uppermost. I then endeavored to introduce the superior within the inferior, but the extremities of each became so everted that it was utterly impossible to succeed; it was therefore given up, and

* American Journal Med. Sciences. vol. x, p. 47.

treated in the way recommended by Mr. John Bell.* To the same import precisely is the testimony of Sir Astley Cooper. "Some years ago," he observes,† "I divided the intestine of a dog, with a view of trying to introduce the one intestine within the other; but I had no sooner made the division than the intestines became everted, and so bulbous at each extremity that I found it impossible to pass one within the other; and that this also takes place in the human subject is proved by a preparation of wounded intestine in the Museum at St. Thomas' Hospital, taken from a man who had been kicked by a horse. The jejunum was ruptured, and it appears everted." Such, indeed, must be the experience of every practitioner who has had an opportunity of witnessing a lesion of this kind, whether in the human subject, or in the lower animals.

To overcome this contraction, Professor Velpeau thinks the best plan would be to seize simultaneously the two principal diameters of the inferior end by their four extremities with an equal number of forceps or hooks. Swelling or distention of the upper end may be prevented by an assistant holding and compressing it, while the operator endeavors to introduce it into its destined situation.‡ This plan, however, is by no means free from objection, since it can only succeed at the expense of much pain to the patient, and the risk of creating unnecessary inflammation. I have tried it in several instances, and this is precisely the conclusion at which I have arrived.

The third objection to this proposal is the apposition of a serous with a mucous surface. This constitutes no little impediment to the reparative process, which can be accomplished only after a long time, and then probably in a very imperfect manner. Indeed, Mr. Lawrence and others are inclined to suppose that direct union cannot be effected at all under these circumstances, asserting that the success depends

* Inaugural Essay, Caldwell's Collection, p. 296.

† Treatise on Hernia, p. 54. London, 1827.

‡ *Médecine Opératoire*, T. iv, p. 134.

altogether upon the extent and firmness of the collateral adhesions; an opinion which, there is reason to believe, is in the main well founded.

Lastly, the upper part which is to be inserted into the lower, must be separated from the mesentery, a procedure which sometimes exposes the patient to considerable risk from hemorrhage. Of this fact my own experiments have afforded me a number of striking and convincing proofs. Baron Boyer of Paris, in attempting to put this method into execution, tied not less than seven or eight arteries, and yet his patient died from effusion of blood into the abdomen.

Velpeau states that he saw this method tried at the St. Louis Hospital of Paris, by Professor Richerand, upon a patient who died the following day.* Baron Boyer executed it with no better success.† His patient, an athletic brasier, about forty-five years of age, had been affected with strangulated inguinal hernia for three days, and on exposing the bowel he found that it was mortified. He accordingly made an incision to the extent of four inches into the sphacelated part, and thus allowed the escape of its contents, to the great relief of the individual. The operation over, he administered mild opening medicines, both to evacuate the alimentary canal, and to enable him to distinguish the upper extremity of the gut, which, however, was already sufficiently obvious from its dilated condition. The next day he cut away the mortified portion, and united the two ends according to Ramdohr's method, introducing the superior, supported by a cylinder of card, into the inferior. The operation, however, was not only tedious but extremely painful, and when completed, he found it impossible to return the gut, distended as it was by the foreign body, without a considerable enlargement of the ring. The patient grew decidedly worse during this second operation; the symptoms of strangulation, which had been relieved by the free discharge of fæcal matter through the

* Op. cit. T. iv, p. 134.

† *Traité des Maladies Chirurgicales*, T. viii, p. 134.—Lawrence on Ruptures, p. 359.

mortified part, were soon renewed, and destroyed the patient in sixteen hours. The dissection revealed inflammation of the intestines and a slight effusion of blood into the peritoneal cavity.

Flajani, of Rome,* also tried the artifice on several occasions, but death was invariably the consequence. He experienced great difficulty in his attempts to invaginate the divided extremities of the bowel, and speaks of the practice in terms of decided condemnation.

Notwithstanding these difficulties and disasters, it would seem, from the testimony of a recent writer, Professor Velpeau, that Laviellé, Chemery-Havé, and Schmidt have each reported a successful example in support of the practice. Another, which occurred in our own country, was published a few years ago, by Dr. Zina Pitcher of the United States army, and, from the manner in which it was treated, reflects much credit upon that gentleman. The following is an abstract of it.†

Nicholas Miller, a citizen of the Cherokee nation, was stabbed on the 22d of June, 1831, with a butcher's knife, which, entering the abdomen at the left internal ring, passed upwards and inwards towards the median line, making a wound three inches in length in the skin, and another still more extensive in the peritoneal sac, followed immediately by a protrusion of several feet of intestines. The knife had divided the ileum diagonally, and separated two inches of the lower portion of the mesentery. The fold of intestine in contact with this was cut on its convex side two-thirds across; two other convolutions were transpierced, and the descending colon was partially opened in the direction of its circular fibres. Three branches of the mesenteric artery bled pretty profusely, and were included in separate ligatures, the ends of which were cut off close to the knots. The extremities of the ileum were brought together by passing a needle, armed

* Collezione d'Osservazioni, &c., di Chirurgia, T. iii, p. 60. Roma, 1802.

† American Journal of the Medical Sciences, vol. x, p. 42.

with a thread, through the upper portion from without inwards, thence into the lower part and out again, including half an inch of intestine in the stitch, after which it was returned through the upper end from within outwards. Three sutures of this kind made the intus-susception complete. The extremities of the ligatures were cut off near the peritoneal surface. The other openings of the small bowel were closed with the continued suture, the ends of which were left long, and so tied as to hang within the tube. The wound in the colon was united with a single stitch. The prolapsed intestines were next sponged with warm milk and water and returned into the abdomen; a few pieces of the omentum which had been injured by the knife were excised, and the edges of the outer wound approximated by half-a-dozen turns of the continued suture. The external ligatures were detached on the fifth of July, and by the eleventh of the month the wound in the abdomen was completely healed.

Laviellé's case occurred at Mainbaste, in the department of Landes, in France, and is recorded in the forty-third volume of the "*Journal Général de Médecine.*" The following notice of it is taken from Jobert's treatise on the surgical diseases of the alimentary canal.* The patient was affected with inguinal hernia of the left side, which at length became strangulated. The tumor was of considerable volume; gangrene supervened, eventuating in the sloughing of the common integuments, and the effusion of fæcal matter. A longitudinal incision being made down upon the parts, a coil of intestine, a foot long and completely sphacelated, was removed with the scissors, when the extremities of the tube were fastened to the outer opening with a thread carried through a fold of the mesentery. At the expiration of twenty-four hours, Laviellé invaginated them by inserting the superior within the inferior, and keeping them in contact with the ligature previously attached to the mesentery, the ends of which, after the replacement of the gut, were brought out at the wound

* T. i, p. 85.

in the abdomen. The next day the man walked to the guard-house, and continued so to do regularly during the treatment. The cure was completed in sixty days.

4.—*Method of Le Dran.*

Le Dran was a warm advocate of what is denominated the *looped suture*, of which he was the inventor.* Whether he ever employed it in the human subject for purposes of this kind, I am unable to say, as I have not before me a copy of his works. It is not improbable, however, that he did. To perform this suture, as many needles should be used as it is intended there should be stitches; they should be round, straight, and slender, and furnished each with an unwaxed thread a foot long. The lips of the wound being held by the surgeon and his assistant, as many ligatures are passed through them as may be considered requisite, with the precaution to let the intervals between each two of them not exceed a quarter of an inch. When the sutures are all introduced and the needles removed, all the threads of one side of the cut are tied together at their ends, and then those of the opposite side, after which the whole are united and twisted into a sort of cord. The stitches by this procedure are approximated to each other, and the divided extremities of the intestine thrown into plaits, by which the edges of the solution of continuity are, it is said, prevented from gaping. The bowel being replaced, the threads are secured to the bandage



* *Traité des Operations Chirurgicales.* Paris, 1742.

which is put over the dressing, and the outer wound is closed in the ordinary manner. When the injury is sufficiently repaired, which rarely happens under five or six days, the ligatures are untwisted, and all the ends on one side cut off on a level with the skin, after which the others are to be slowly and cautiously withdrawn.

The advantages which Le Dran claims for this suture are the two following; first, that the twisting of the threads, as stated above, produces a slight puckering of the surface of the injured bowel, by which the re-union of the edges of the wound is more effectually and speedily secured; and secondly, that the ligatures may be withdrawn with so much facility as not to interfere, in the slightest degree, with the adhesive process. These advantages are, it is obvious, altogether chimerical, for this puckering of the bowel, instead of promoting the apposition of the edges of the wound, as is contended by Le Dran, has the effect of separating them from each other, and thereby increasing the danger of fæcal effusion. The removal of the ligatures, notwithstanding the ease with which it is accomplished, must also have a tendency to break up the tender adhesions of the part, if not to excite undue irritation in the peritoneum. Besides these objections, which are in themselves sufficiently serious to prevent any future recourse to this method of treatment, it is alleged that it is almost always followed by such a diminution of the caliber of the alimentary canal as to interfere essentially with the passage of its contents. Mons. Velpeau, in his Surgical Atlas, has delineated this suture, but whether with the design that it should be adopted in practice, or as a piece merely of scientific curiosity, I am unable to say. He has not made any special mention of it in connexion with the subject in his "*Médecine Opératoire*."

5.—*Method of Bertrandi, or "La Suture à Points Passés."*

Another method, which appears to have been a good deal employed at one time, was devised by Bertrandi, and is usu-

ally described by the French writers under the phrase of "*la suture à points passés*." It differs from the continued suture merely in having all the loops laterally, and in drawing together only the internal lips of the wound, the outer remaining apart; or, in other and more simple language, the ligature is passed through, not over the margins of the solution of continuity, as in the common operation. The method of Bertrandi has been advocated by Sabatier, Desault, Boyer, and several other surgeons, though they have not, I believe, adduced any facts in illustration of its efficacy. Boyer says* that it possesses the advantage of keeping the edges of the wound together and of promoting their adhesion with the surrounding parts, at the same time that it does not occasion any puckering of the bowel, or diminution of its caliber; and for these reasons he seems to be inclined to give it a preference over other procedures.

The "*suture à points passés*" is performed with a round, straight needle, armed with a waxed thread. As a preliminary step, the surgeon adjusts the edges of the wound, placing them parallel and in close contact with each other. For this purpose he takes hold of one extremity of it himself, and intrusts the other to an intelligent assistant. The needle is then carried somewhat obliquely across the lips of the opening, about the fifth of an inch from its extremity: having done this it is brought back in the same manner, and thus it is passed alternately from one side to the other until the whole track is closed up, the operation being similar to that employed by a tailor in sewing together two pieces of cloth. The interval between the respective stitches should not exceed two lines, or the sixth of an inch, otherwise fæcal matter may escape into the abdomen. The intestine being replaced, the extremities of the suture are brought out at the external opening, where they are secured by a strip of adhesive plaster. In a few days one of them should be cut off close to the wound, and the other gently

* *Maladies Chirurgicales*, T. 7, p. 379.

pulled to promote its separation. Some of the successors of Bertrandi recommend that the ligature should be passed through the edges of the outer orifice, to prevent the bowel from slipping out of the reach of the surgeon; a precaution which can only be necessary when the patient is very young or restless.

To obviate the danger of destroying the feeble and imperfect adhesions of the intestine, incurred in withdrawing the suture in the manner suggested by Bertrandi, it occurred to Béclard that it might be advantageous to use two ligatures, one white, the other colored. The mode of performing the operation does not differ in other respects from that which we have just described. When the time for removing the threads has arrived, the surgeon withdraws them in opposite directions, taking hold of the white one, for example, with the left hand, and of the colored with the right. The result of this traction is that the adhesive process is scarcely at all disturbed, while the reverse must always happen when the suture is detached in the manner recommended by Bertrandi.

With the exception of Boyer, I do not know that the method of Bertrandi has any advocate at the present day. I have not tried it upon any of the inferior animals, and we are not in possession of any facts which warrant its employment in the human subject.

6.—*Method of the Four Masters.*

The method of the four masters—“*Quatre Maitres*”—as it is termed, which is usually attributed to Duverger, who was the first to revive it after it had fallen into neglect, consists in stitching the divided ends of the bowel over a piece of trachea, either of the calf or of some other animal. What the precise length of the tube was I am unable to say, but in all probability it did not exceed two inches. In its diameter it was a little smaller than the alimentary canal, into which it was intended to be introduced, and previously to

using it it was well dried and varnished, to prevent it from too readily imbibing moisture. Three ligatures were passed through it equidistant from each other, and armed each with a small curved needle. The piece of trachea thus prepared was inserted into the ends of the bowel, where it was secured by three interrupted sutures made by passing the needles from within outwards, about three lines from the edges of the wound, which were held together by an assistant. The ends of the threads were cut off close to the knots, and the parts reduced by pushing the lower end in first.

This method of the four masters is said to have been successfully employed by Duverger in a case of strangulated hernia, in which a part of the bowel was affected with gangrene.* In the account of this process, as given by Dupuytren, in his *Treatise on Gun-shot Wounds*,† the inferior extremity is directed to be drawn nearly half an inch over the superior, placing thus, as in the operation of Ramdohr, a mucous surface in contact with a serous. The surgeon, also, is made to use a single suture, instead of three, as stated above, and the upper end of the gut is to be carefully distinguished from the lower.

This method, slightly modified, was successfully employed by Sir Astley Cooper upon a dog. He used a cylinder of isinglass instead of a calf's trachea, upon which he made three sutures, one at the mesentery, and another at each side of the bowel, which was then returned into its natural situation. In three days the animal took food, had regular stools, and on the sixteenth day he was killed, when the united parts were shown by Sir Astley to his students. No advantage appeared to result from the cylinder of isinglass, as it became shut by the contraction of the intestine, and the experiment was therefore never repeated.‡

* Dict. de Med. et de Chir. Pratiq., T. 13, p. 267.

† T. i., p. 194.

‡ On Hernia, p. 51.

Sabatier proposed, as a substitute for the piece of trachea, recommended by the four masters, a roll of paste-board, which he advised to be well varnished with oil of turpentine, or some other tenacious fluid, and fastened to the bowel with a single stitch. Watson, an English writer, speaks favorably of a canula of isinglass. Some of the older surgeons were in the habit of employing a tube of elder-wood; others a piece of tallow candle. Rogers, Garnier, and Théodore recommend the use of the elder-wood to defend the suture from the injurious effects of the fæcal matter, of which they appeared to have much dread.

The method of the four masters, somewhat modified, is warmly advocated by Chopart and Desault, in their *Treatise on Surgery*. The improvement which these two distinguished men suggested, but which was never, I believe, carried into effect by them upon the human subject, consists in passing two fine needles, armed with a silk ligature, twelve inches long, through the centre of the paste-board cylinder, and bringing them out respectively three lines above and below their place of entrance. The ligature will thus be found to be attached to the artificial tube, without crossing its cavity, or interfering in any wise with the transmission of fæcal matter. The two needles are next carried through the upper part of the bowel, equidistant from each other, and at a point from the wound equal to the half of the length of the cylinder. The latter is now to be engaged in the upper portion of the intestine, after which the lower end is to be pierced in the same manner, but a little farther from the seat of the injury, and the remainder of the tube to be introduced along with five or six lines of the inferior extremity of the gut. Should this invagination be attended with much difficulty, on account of the mesentery, the latter should be detached to the requisite extent, and the operation finished in the manner already stated, care being taken to tie any obstinately bleeding vessels. The parts, when returned, should be kept in exact apposition with the external wound, to promote their adhesion, an object which may be readily accomplished

by securing the ends of the ligature to the surface of the abdomen.*

7.—*Method of Palfin, Bell, and Scarpa.*

J. Palfin, author of the "*Anatomie Chirurgicale*," thought it of much less importance to sew up the wounded intestine than to stitch it to the wall of the abdomen. In conformity with this belief he advises the surgeon to carry a waxed thread, armed with a needle, through the edges of the solution of continuity at their centre, and after tying it into a simple slip-knot, to bring the ends out at the external opening, where they are to be secured by an adhesive strip. He entertained the singular notion that the divided ends never united with each other, but that the cure was effected solely by the adhesions which they formed to the surrounding parts. This plan, which certainly possesses the merit of great simplicity, he considered as equally applicable to transverse and longitudinal wounds.†

This method of the old French surgeon found a warm advocate in that great luminary of the profession, the late Mr. John Bell, who, however, does not appear to have been aware that it had been previously recommended; at all events, he has not any where alluded to Palfin or his writings in connexion with the subject. Like his Gallic predecessor, he suggests that only a single stitch should be taken, and that the thread should be brought out at the external opening; adding, in his own expressive language, that if there be in all surgery a work of supererogation it is this operation of sewing up a wounded gut.‡ This plan he advises not only where there is a simple slit-like aperture in the bowel, the

* *Tavernier's Operative Surgery*, translated by the author, p. 276. Phila. 1829.

† *Anatomie Chirurgicale*, T. ii, p. 76. Paris, 1743.

‡ *Discourses on the Nature and Cure of Wounds*, vol. ii, p. 80. Walpole, N. H., 1807.

kind of injury most commonly met with, but where it is divided in its entire cylinder. He is of opinion that it is only necessary to keep the wound of the intestine neatly and closely in contact with that in the wall of the abdomen, when the parts will gradually adhere, affording at the same time an opportunity for the escape of fæcal matter. He contends that sewing up the breach in the intestine firmly with a needle and thread is absurd, and that the mere pressure upon the abdominal viscera will keep the edges of the wound so close to the peritoneum as to insure their re-union. But is this the practice generally pursued by surgeons, or, rather, is it not universally abandoned, for the sufficient reason of its entire inadequacy? If there ever was an error committed by any writer more serious, culpable, and mischievous than another, it is most assuredly this of Mr. John Bell, who while criticizing and condemning, in no measured terms, the advice and practice of others, has himself fallen into a most strange delusion. Had he performed the operation in a single instance upon the human subject, or upon an inferior animal—an experiment from which he affects so much to shrink—he would have become fully sensible of its danger and insufficiency. That the operation, as recommended by this eminent surgeon, might occasionally be attended with success is not improbable, but that it should not be trusted to in the present enlightened state of the healing art must be obvious to all who will be at the trouble to investigate it. Independently of the great risk of fæcal effusion into the peritoneal cavity, there are few cases, if any, in which it would not be followed by an artificial anus, an occurrence which need never attend enteroraphy when performed in the manner previously pointed out.

Although both Smith and Travers had already exposed the insufficiency of this mode of procedure, I was determined, if possible, to throw additional light upon it, and with this view instituted several experiments, the results of which, as will be here seen, fully confirm those of the above investigators.

EXPERIMENT I.—Having obtained a small slit, a fold of the ileum was drawn out of the abdomen, and divided through its entire cylinder. A single stitch was then carried through the everted edges, at the point opposite to their attachment to the mesentery, when the ends of the ligature were tied and left protruding at the external orifice, which was secured in the usual manner. In thirty-five hours the animal expired, having in the meanwhile suffered severe pain and refused such food as was offered her. The opening of the abdomen was followed by the escape of a considerable quantity of fætid gas; and the peritoneal sac, which exhibited marks of high inflammation, contained more than an ounce of fluid and solid fæces. The edges of the wound were red, besmeared with thick and ropy mucus, and at least three lines apart at the widest portion of the breach. No attempt at reparation was visible.

EXPERIMENT II.—The above experiment was repeated upon a small but full-grown dog, which died in twenty-four hours after the operation. A considerable quantity of thin alvine matter was found in the abdomen, as in the preceding case, the peritoneum was extensively inflamed, several coils of intestine adhered slightly to each other, and the lips of the wound were deeply injected, with marked eversion of the mucous membrane, but no incrustation of plastic lymph. It is worthy of remark that, neither in this nor in the preceding experiment, was there any discharge of fæces through the external wound.

EXPERIMENT III.—A young dog of moderate size was submitted to the same experiment as the two preceding, with this difference, that the incision passed only through two-thirds of the intestine, producing a wound about an inch and three-eighths in extent. For the first twenty-four hours he was apparently well, being lively and cheerful, but afterwards symptoms of indisposition came on, and he died early on the third day. The lips of the wound, red and injected, were separated fully a line and a half at their middle; semi-fluid fæces with some water which the animal had drank, had

escaped into the abdomen, and the peritoneum, especially in the vicinity of the injury, displayed strong marks of inflammation. The external wound had a red angry appearance, from the passage, no doubt, of fæculent matter, which was discharged through it for ten or fifteen hours before death.

In an experiment of this kind performed by Mr. Travers,* the animal survived only a few hours. The peritoneum appeared highly inflamed, adhesions existed among the neighboring folds, and lymph was deposited in masses upon the sides of the injured gut. A quantity of bilious fluid was found among the abdominal viscera together with some other extraneous substances, and a worm was depending from one of the apertures of the gut, which had receded to the utmost and were of a circular form.

In three experiments by Dr. Smith† instituted with a view of ascertaining the merits of Mr. Bell's treatment, one of the dogs died at the end of the first day, the other on the fifth day, and the third on the seventh day. In all, the intestines were very much inflamed, from the effusion of fæcal matter into the peritoneal sac. In one of the animals, that namely which lived longest, one part of the injured intestine had contracted adhesions to the external wound, allowing thereby a slight discharge of fæces in that direction.

Thus, in seven experiments, all conducted, there is reason to believe, with the requisite care and skill, not a single one had a favorable termination. Nor is this surprising when we consider the circumstances which invariable attend lesions of this description; we have already seen that punctures of the bowel, more than a third of an inch in length, are almost constantly followed by fæcal extravasation, and the same thing it will be recollected is apt to happen in more extensive wounds treated with the interrupted suture, when the interval between each two respective ligatures exceeds three or four lines. That Mr. Bell should have committed

* *Op. cit.*, p. 116.

† Caldwell's Medical Theses, p. 296.

such an error is not to be wondered at when we remember the period at which he wrote; he instituted no experiments on any of the inferior animals to elucidate the subject, and the beautiful researches of Travers, Thomson and Smith had either not been made, or no notice of them had appeared. He sinned, therefore, because he had not the requisite light to guide him. But it is otherwise with Professor Cooper, of London.* In sanctioning, as he does, the practice of John Bell, he is instrumental in perpetuating an error for which modern surgery can find no excuse, and which deserves to be reprobated in the strongest terms, from the pernicious tendency which it must exert upon the younger members of the profession when inculcated by an authority so respectable and influential.

Professor Gibson, of Philadelphia, appears to be disposed to advocate the same kind of practice.† “Should a case present itself” says he, “which, from the extent of the wound and other circumstances, seemed to require a suture, I should be inclined to follow the plan of Mr. Bell, and simply employ one or more tacks of the *interrupted* suture, merely for the purpose of connecting the wound in the gut slightly to the external wound.”

Still more extraordinary and unaccountable is the plan of procedure proposed by Professor Scarpa, of Italy.‡ This celebrated surgeon has offered a variety of arguments against sewing up the wound at all, and asserts that in all cases of injury of the intestinal canal, whether the opening be longitudinal or transverse, a suture is always not only useless, but even dangerous and fatal. Great evils, he thinks, arise from the passage of the ligatures, however few, across the delicate and sensitive tunics of the bowels, which are thus exceedingly apt to become inflamed, and to propagate the morbid action rapidly to the surrounding viscera. He affirms that the expe-

* First Lines of Surgery, vol. ii, p. 74.

† Institutes of Surgery, vol. i, p. 119. 1838.

‡ Treatise on Hernia, translated by Wishart.—Cooper's First Lines of Surgery, vol. ii, p. 71.

rience of several ages clearly proves that nearly all who have been subjected to enteroraphy have died in the severest agony, and that the few who have recovered have escaped, not in consequence of the operation, but in despite of it. I do not deem it necessary to enter into any formal refutation of these singular views of the illustrious professor of Pavia. I must only express my surprise that they should have been entertained and promulgated after the publication of the researches of Mr. Travers, which shed so much light upon the subject, and so emphatically inculcate the indispensable importance of the suture in all wounds of the intestines, even when of comparatively small extent. It is one of those remarkable circumstances which not unfrequently occur in our profession, and which can only be explained by a reference to the infirmities and prejudices of our nature. The case of Scarpa is on a par precisely with that of John Bell. When this eminent surgeon was at such pains to criticize and condemn the practice of his name-sake, Benjamin Bell, of Edinburgh, in regard to the present topic, he had probably little idea that the verdict of the profession would, in less than a quarter of a century, entirely reverse his decision, and treat him as unsparingly as he did his Scotch cotemporary.

(To be continued.)

Bibliographical Notices.

ART II.—*The Climate of the United States and its Endemic Influences. Based on the Records of the Medical Department and Adjutant General's Office, United States Army.* By SAMUEL FORRY, M. D.

L'ensemble de toutes les circonstances naturelles et physiques, au milieu desquelles nous vivons dans chaque lieu.—CABANIS.

The best observations upon climate often lose half their value for the want of an exact description of the surface of the country.—MALTE-BRUN.

New York: J. & H. G. Langley, 57 Chatham street; Barrington and Haswell, Philadelphia; Little and Brown, Boston, 1842, p. 378 12mo.

In respect to works of its own class, this volume may be regarded as THE BOOK OF BOOKS—or it *might* be called *the* book—there being, as far as we are informed, no production resembling it, either in the English, or any other, language. Assuredly there is none *strongly* resembling it; much less is there any one *equal* to it, in many of its most interesting and important qualities. It is therefore not only *original*, but *unique* in its kind.

To characterize it still further, it is the first work written on the subject of general American medical statistics, and is therefore, in its object entirely new. Its basis is spacious,

being co-extensive with the outline of the United States; its matter consists of facts of great value, collected by observation continued, with uncommon labor, perseverance, and pains-taking, through a period of *twenty years*; these facts are composed of the manifold and important elements that enter into the composition of the different climates of the United States, and the effects, salutary and deleterious, which those climates produce on organized matter; and of the changes which the climates have already sustained, since the settlement of the country, and are still sustaining, by the action of certain specified causes. And to all this is added much information, curious as well as useful, respecting the changes and their effects, that have occurred in the climates of other countries, within the period of historical records.

Nor, are these facts, interesting and valuable as they are, all that confers on the volume its title to the high standing it is destined to attain. Far from it. The excellence of its plan and arrangement, the elevation and even grandeur of its aim, the masculine spirit and love of philosophy which pervade it, and the elegant style in which it is composed, are in no respect inferior to the matter which it contains.

Should any one competent to sit in judgment on this production suspect us of bestowing, in these expressions, undue commendation on it, let him attentively study it, and he will be made sensible of his mistake. We say, "study it;" for the whole amount of its worth is not to be fully apprehended and weighed by a common-place perusal of it.

But we have not yet mentioned the special purposes which our author had in view in the preparation of the work. That our readers therefore may have a knowledge of them the more exact and definite, we shall state them in the writer's own words.

"The chief objects intended to be accomplished by the publication, are to present, in **PART FIRST**, a classification of the principal phenomena of our climate, *physically* considered; and to attempt in **PART SECOND**, to trace out the *medical*

relation of these laws, thus establishing in both a classification of climates having for its basis observation."

In more detailed, and perhaps more communicative language, the design of our author is, to point out to what extent, and by what agents, climate (including, as two of its elements, special and influential localities, and given geological formations) is instrumental in the production of such complaints as prevail epidemically in different situations. And it will not be denied, that the object thus held in view by him constitutes one of the weightiest and most interesting desiderata connected with the medical literature of our country. And the ability, with which he has executed his design, places, in that respect, the medical literature of the United States above that of any or all of the nations of Europe. For, as already mentioned, we have yet to learn that a single work of the kind has heretofore appeared, in any language, comparable to that which now lies before us. And we are gratified to learn that, in this sentiment, some of the European Journals fully concur, and, with that liberality and magnanimity, which should always characterize scientific productions, avow that concurrence.

We know of only three persons who have heretofore made the climate of the United States a subject of discussion to such extent as is worthy of notice. But they were men of great knowledge, ability, and distinction—Mr. Jefferson, Dr. Rush, and Mr. Volney. For want of an acquaintance however with certain branches of knowledge indispensable to their purpose, neither of them was qualified for the task he undertook. The reason is plain. Neither of them was versed in either meteorology or geology, and, of the three, Dr. Rush alone was acquainted with medicine. And, as a qualification for a *thorough discussion* of the subject of climate (such discussion we mean as that we are now noticing) a knowledge of those three branches of science is essential. And Dr. Forry has shown that his qualifications in those and all other respects, are amply sufficient for the accomplishment of the enterprise in which he engaged.

With such qualifications, united to the persevering labor he bestowed on the subject, the result corresponds. Not only has he shown himself to be far superior to his three distinguished predecessors in the *amount*, but also in the *accuracy*, of his knowledge of the climate of the United States. Hence he has satisfactorily corrected sundry errors which they had committed; and by which, through the influence of their writings, and the weight of their names, the public mind has long been misled. Dr. Forry moreover has manifested in his treatise as much of sound judgment and practical common sense, as he has of an acquaintance with letters, and with the principles of the several branches of science, to the study of which he has so successfully devoted himself. If we mistake not, such will be the standing and effect of the work from his pen, which we are now considering, that it will be instrumental in producing, at least among his countrymen, if not on a more extensive scale, the commencement of a new era in the cultivation of climatology. Our author's definition of climate alone is indicative of his entire mastery of the subject. He has given a much more thorough and comprehensive exposition of it as an aggregate, as well as a more full and accurate detail of the elements which compose it, than is to be found in any other work, with which we are acquainted. That our readers may examine and judge of it for themselves, and derive from it the information it is calculated to impart, we shall present them with the passage containing the definition:

“The term *climate*, which is limited, in its rigorous acceptation, to a mere geographical division, and in ordinary parlance, to the temperature only of a region, possesses in medical science, a wider signification. It embraces not only the temperature of the atmosphere, but all those modifications of it which produce a sensible effect on our organs, such as its serenity and humidity, changes of electric tension, variations of barometric pressure, the admixture of terrestrial emanations dissolved in its moisture, and its tranquility as

respects both horizontal and vertical currents. Climate, in a word, as already defined, constitutes the aggregate of all the external physical circumstances appertaining to each locality in its relation to organic nature. "To observe," says Professor Rostan, "the simultaneous effects of light, heat, electricity, of the winds, &c., on the organic productions of the different zones of the earth, to explore the nature of this earth, to deduce from this knowledge the influence which they exercise on the physical and moral nature of man, such is the wide field which climates present to investigation."

We have said that our author's mind is judicious and practical, no less than scientific and literary. In illustration and proof of this, it is necessary for us only to say, that his application of climate, as just defined, to the promotion and preservation of health, the production and modification of disease, and of course to the furtherance of the public good, is in strict accordance with his views of its composition and nature, as an agent, exercising an influence on organized matter. Hence his division of the United States into three great compartments—the Northern, Middle and Southern—in each of which the diseases that prevail correspond to the predominant elements of the climate of the place, in full and fair correspondence with his representation of them. In further explanation of our meaning on this topic, we shall extract from his publication another passage.

"The connexion between meteorology and medical science is, in truth, highly important. From the days of Hippocrates, the records of medical philosophy demonstrate that the phenomena of life are not the result of original organization only; but that the moral, intellectual, and physical capacities of man are subject to the influences of those causes, the aggregate of which constitutes climate. The doctrine receives an apposite elucidation in the corporeal degeneration induced by malaria. So deep and pervading are the effects of this subtle poison on the indigenous inhabitants of marshy districts, in warm climates, that the energies of the system are sapped, and premature decrepitude induced; and when sub-

jected to these baneful exhalations, through successive generations, the mind becomes torpid and imbecile, the moral sentiments debased, and the stature and symmetry of the body deteriorated. Again it finds a ready illustration in the history of the recent epidemic (*cholera asphyxia*) which, in its wide diffusion, threatened to depopulate vast tracts of the earth's surface; but which, owing doubtless to great meteorological changes, notwithstanding inappreciable by our eudiometric instruments, suddenly ceased its ravages, and left, like many other destructive pestilences in preceding ages, scarce a trace behind but the terror of its name."

It is perhaps due from us to our author that we say something more definite and characteristic, than we have yet done, of his style, to which we do no more than justice, when we pronounce it eminently spirited, graphic, and scholar-like. In one extract more it shall speak for itself; in doing which it will testify conclusively to the correctness of our remark.

"But woe to the invalid that braves the torments of a summer residence" (in a burning climate,) "under the disadvantage of a camp life! Insects are the pests of a tropical clime. As to fleas, flies, and ticks, the interior of Florida may well rival Egypt in the days of Pharoah. The chigoe (*pulex penetrans*) insinuates itself beneath the skin, where it soon establishes a populous colony. Flies seem indeed to form a component part of your food, your drink, and the atmosphere you inhale. Lizards, snakes, and scorpions get into your bed, whilst the industrious ant and weevil not only eat your rations, but devour your books—the food of the mind. All nature seems alive; and every hour you observe some uncouth living thing, whose family name has scarce been registered by the entomologist. In addition to these annoyances, the ear will be greeted by a nightly serenade performed by wolves and alligators—a woful concert of whining yells and dismal bellowings, constituting the realization of a *howling* wilderness."

Notwithstanding however the high estimation, in which we hold the work before us, *as a whole*, there are certain

positions in it, in which our own observation, connected with reflection, forbids us to concur. We shall briefly state two of them, both of which relate to winds.

We believe and have long believed with Dr. Forry, that the Gulf-stream and the immense "ocean-lake" which it forms, expend much—perhaps most of their tepefying influence on the atmosphere of the northern and eastern Atlantic, and on that of the western shores of Europe and Africa. For that Africa as well as Europe feels that influence, cannot we think, be reasonably questioned.

We are strongly apprehensive, however, that the climate of the United States is more affected by the Gulf-stream, than the Doctor seems fully prepared to admit. This is the case, in particular, during the prevalence of a strong east, or southeast wind. The latter wind more especially throws, in few hours from its commencement, the whole mass of the Gulf-stream atmosphere on the shore of the States to which it is directed.

This wind, when it begins to blow, is comparatively *cool*; because it brings with it the temperature of the ocean-atmosphere between the Gulf-stream and the American coast. But in the space of from three to five hours, and sometimes less, it becomes warmer by several degrees; because it then possesses much of the temperature of the atmosphere of the Gulf-stream. We *might* say that it is then nothing but a current of that atmosphere setting toward the west. Thus is the climate of our eastern border rendered hotter by it in summer, and milder in winter. It is worthy of remark however, that, during the latter season, south-easters are rare with us.

The same wind moreover is often, if not usually, instrumental in the formation of clouds, which descend for the most part in torrents of rain. The reason of this is plain. The warm air comes loaded with humidity from the ocean, which, when sufficiently condensed, by the coolness of the land-air, assumes, by attraction, the shape of water-drops, and falls, by gravity, in the form of rain. So much for the

south-east wind. Now for a few remarks on its antagonist.

The north-west wind is the coldest that is experienced in the United States. The reason of its low temperature, as Dr. Forry and most if not all other persons allege, is, that it comes from the cold atmosphere of what is usually called the "American Tartary," far beyond the region of the Lakes.

In this hypothesis we cannot concur; because we believe it groundless and untenable. In our brief discussion of it, we shall express ourselves as if resident in the city of Philadelphia, because we there first made it a subject of examination and thought. We therefore now consider ourselves remote from the frozen and snow-covered plains of the American Tartary, at least from fifteen hundred to two thousand miles—we believe much more.

No wind short of a hurricane travels *fifty miles* an hour. The north-west wind rarely travels more than from *twenty* to *thirty*. But we will give it the rate of *forty*, which we know to be not a little beyond its usual velocity. On the supposition that its starting point is distant from us two thousand miles, it will reach us in *fifty* hours—and if only fifteen hundred, in a few minutes more than thirty-seven hours.

Nearly that space of time then must elapse, after the commencement of the north-west wind, before it can reach us in Philadelphia, and cool materially the temperature of the atmosphere.

But is such the case? Does a period of that extent pass by, before the frigorific influence of the wind is experienced? Far from it. Not a tenth of the space expires before its effect is very sensibly, not to say severely felt.

We have witnessed a depression of the mercury, by the chilling action of the north-west wind, to the extent of *thirty degrees, in less than three hours*. We once at least, if not oftener, knew a change of the kind to be produced, in very little more than *one* hour.

From the region far north and west of the lakes then, it is absolutely impossible for that cold wind to come. We deem

it highly questionable, whether a wind of such extent has ever existed. A stream of air, over mountains and hills, two thousand, or even fifteen hundred miles long, would be, we apprehend a new phenomenon. The areas of such atmospheric movements are usually limited. Mariners know that ships at sea but a day's sail from each other, or perhaps less, where there is nothing to obstruct the sweep of the air, often experience at the same moment very different weather. While one is in a gale, its neighbor is becalmed. We once sailed from London, in company with an American ship, bound like ourselves to the United States. So great was our superiority in sailing-speed, that, in a few hours, we left our companion *out of sight* behind us. Yet *she* made her passage, under fine weather and fair winds, in about *twenty-five* days; while *we*, pursuing a track not very distant from hers, were detained on the water by heavy gales, head-winds, cross-winds, and no winds at all, *fifty-two* days. Nor are events of the kind unusual.

Whence then, it be may asked, does the north-west wind come? It appears and has long appeared to us to come from above, in such an earthward direction, as to bring down with it the higher and colder strata of the atmosphere, whose temperature is at, or perhaps below the freezing point, and mingle them with the lower and warmer strata, thus reducing the latter to a medium temperature.

Are we asked, why we believe that the north-west wind comes to us in a direction more perpendicular than that of other winds? We reply, that the phenomena attending it appear to us to testify strongly to that effect. It makes our chimnies smoke much more certainly and annoyingly than any other wind. It even rushes very often directly down the chimney, blowing soot, smoke, and ashes out of the fire-place. Nor is this all. It comes in puffs and flaws, which render it unusually dangerous to sail-boats. While other winds make their approach horizontally, producing a ripple on the water, which warns the boatman to be on his guard; it pounces on him from above, like an eagle on its prey, and

not unfrequently capsizes his wherry. Previously to the construction of steam-vessels, three-fold more ferry-boats were upset, on the river Delaware, by the north-west wind, than by those from all other points of the compass.

The opinion here expressed respecting the source of the coldness of the north-west wind, we have entertained and defended almost from our boyhood; and we published it early in the present century, accompanied by the reasons which we deemed confirmatory of it. And though we do not pronounce it incontestable, yet, as far as we are informed, it has never *been* contested. One word more before we dismiss it.

M. Volney inserted the opinion in his treatise on the climate of the United States, and considered it well-founded and sound. In thus stating it, and sanctioning it by his name, he made no reference to us. Yet we solemnly declare, that he was *indebted* for it to us; though we were quite youthful at the time. Nor is this the only opinion that M. Volney *borrowed* from Americans, and inserted in his book, without acknowledgment. In truth, though extensively informed, he was a *plagiary*—and not an *original* either in observation or thought.

Are we again asked, why it is that the north-west wind should come to us, in a direction more perpendicular, than that of any other wind? We reply that we do not know. But our ignorance of the cause detracts in no degree from either the *possibility*, or the *probability* of the fact. We do not belong to that class of *wise ones*, who discredit facts, merely because they *do* not and cannot comprehend their causes. When we look thoroughly into the matter, facts are the only objects of our knowledge. Of causes, whether moral, intellectual, or physical, and of their mode of operating, we are perfectly ignorant. On the present subject analogy may throw some semblance of light. At least it may make it appear, that a wind pursuing a downward direction is neither an *unnatural* nor a *preternatural* phenomenon.

It is well known that down the sides of the Andes, the Alps, the Pyrenees, and other lofty and snow-covered moun-

tains, streams of cold air frequently descend into the vallies at their feet, suddenly and greatly reducing the temperature of their atmospheres. Nor do these cold winds pass over the tops of mountains, and then sweep downward along their sides. They come from their lofty regions, but not from their tops. Yet we know not why the air thus descends. But we know the fact, and confide in its truth. And we further know, that when a wind passes *over the top* of an elevated mountain (which it sometimes does) it pursues a downward direction, along its opposite side. In truth there is no other direction which it can pursue. A downward wind therefore is not prohibited by the laws of nature. Nor can we render any reason why a stream of cold air may not descend through the atmosphere in other places, as well as down the inclined plain of a mountain.

Another phenomenon connected with our subject may be cited. Every tornado, violent thunder-storm, and other fierce commotion in the asmosphere, diminishes its temperature. And this effect it produces by mingling together the higher and lower strata of air.

Though these remarks do not solve our problem, respecting the perpendicular direction of the northwest wind, they have a tendency to render it more familiar to us—and also the more to persuade us perhaps of its *probability*. At any rate, no hypothesis can be devised more perfectly groundless—assuredly not more *improbable*, than that which transports the cold of a northwester to the coast of the Atlantic, and even hundreds of leagues along its surface, from the frosty atmosphere of a country far beyond the lakes.

But we must bring to a termination this notice, which, though longer than we designed to make it, has disclosed but a mere fraction of the value of the volume we have been considering. Of even the leading elements of it, to which it was our intention to refer, we have been able to embrace in our remarks but a few. In truth, as already intimated, the entire and abundant amount of that value can be com-

passed only by a thorough acquaintance with the production which exhibits it. As that production, however, merits, as highly as any other of American origin, instead of a mere notice like the present, a full, regular, and well prepared review, it may perhaps be treated by us somewhat to that effect in a future article. Meantime we earnestly recommend it to the attention and study of such readers, as covet at once high gratification and important instruction.

C. C.

THE WESTERN JOURNAL.

Vol. VII.—No. II.

LOUISVILLE, FEBRUARY 1, 1843.

We publish the following communication with great pleasure, since it affords us an opportunity of introducing to the profession one of the most accomplished young chemists in our country. The writer, Mr. Litton, of Nashville, has just returned from Europe, where he spent several years in the arduous prosecution of chemical studies in the laboratories of Wöhler, Liebig and other great masters. He has come home full of zeal in his favorite science, with ample knowledge and skill as a practical chemist, and only wants a situation to be useful to his country. Y.

A new Double Salt, the Sulphite of the Protoxide of Platinum and the Sulphite of Soda, discovered and investigated by Messrs A. Litton and Schnederman.

This compound is formed, when sulphurous acid gas is conducted into a solution in water of the chloride of platinum, and this fluid is saturated by the carbonate of potash. By this method is produced a very voluminous and almost colourless precipitate, which, as investi-

gation showed, is a double salt of the sulphite of the protoxide of platinum with the sulphite of soda.

This body is, when dried, an amorphous, white powder; when moist it has a yellowish tinge, which is the deeper, the more the solution is concentrated, from which it is precipitated. In cold water it is slightly soluble. The solution is colourless, and neutral, and leaves the salt, upon evaporation, as a white varnish-like substance. In warm water it is more soluble, since the hot saturated solution becomes, upon cooling, troubled and untransparent: however, the quantity dissolved is always small. In alcohol it is insoluble. From its solution in water it is precipitated, by the chloride of sodium and several other salts, as a fleecy powder, and the compound thus thrown down is perfectly white.

A remarkable property of this salt is that, when dissolved in water, the presence of platinum is not indicated by its common tests. The solution remains unchanged upon the addition of sulphuretted hydrogen and hydrosulphuret of ammonia. When, however, an acid is at the same time added, by which the salt may be decomposed, the fluid, at the ordinary temperature, is slowly colored; by heating it becomes immediately a brownish red, and the sulphuret of platinum soon falls down. This precipitate is soluble when heated in solutions of the sulphurets of the alkalies. By the caustic alkalies the salt is not decomposed.

By acids, even when they are diluted, it is decomposed, and, with the development of sulphurous acid, dissolved. The solution in hydro-chloric acid, gives, upon evaporation, crystals of the chloride of sodium, and, upon the addition of ammonia, a green crystallinish precipitate of the platina proto-chloride of the hydro-chlorate of ammonia. The solution in sulphuric acid gives, when evaporated, crystals of the sulphate of soda, and presents the dark color of the sulphate of the protoxide of platinum. By a certain degree of concentration, metallic platinum falls down from this solution, a property which was found to belong to the sulphate of the protoxide of platinum prepared for this purpose. The solution in nitric acid assumes a deep brownish-red color, from which, by the addition of sal ammoniac, no precipitate is obtained; if, however, the fluid be then evaporated almost to dryness, the platino-chloride of the hydro-chlorate of ammonia is found in abundance. The brownish-red color seems to arise from the formation of the sulphate of the deu-

toxide of platinum, with which the reaction towards sal ammoniac agrees. In a solution of the cyanuret of potassium, the double salt is very soluble, from which, by evaporating, crystals of the platino-cyanuret of potassium may be obtained.

When the salt is exposed to a temperature of 200° (Centigrade), it loses completely the water which it holds chemically united. Heated to 240° it suffers no further change, but exposed to a still greater heat it undergoes decomposition. This is completely effected by continued exposure to a red heat, whereby a quantity of the sulphate, and sulphite of soda, with metallic platinum, remains behind.

In order to determine the quantity of soda and platinum, the salt was mixed with sal ammoniac and heated red hot. The residue, which consisted of chloride of sodium and metallic platinum, was thoroughly washed with distilled water, and the platinum weighed: while the water, after the addition of sulphuric acid, was evaporated to dryness, in order to determine the soda as a sulphate. To determine the quantity of sulphurous acid, the salt was diffused through water, into which chlorine was conducted, and the sulphuric acid thus obtained by oxidizing the sulphurous, was precipitated by the chloride of barium.

Of the salt dried by 200° (Cen.)

1st Exp. 1.850 grs. gave 1.190 sulphate of soda=0.5214 soda; and 0.543 platinum—0.587 protoxide of platinum.

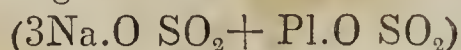
2d Exp. 1.108 grs. gave 0.328 platinum=0.3546 protoxide of platinum.

3d Exp. 1.488 grs. gave 0.954 sulphate of soda=0.418 soda.

4th Exp. 0.867 grs. gave 1.234 sulphate of baryta=0.3395 sulphurous acid.

5th Exp. 0.874 grs. gave 1.249 sulphate of baryta=0.3436 sulphurous acid.

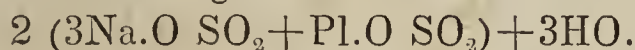
These numbers give for the composition of the salt, when free from water, the following formula:



According to which in one hundred parts are contained,

	<i>Calculated.</i>	<i>Experiments.</i>				
		1	2	3	4	5
Soda,	28.53	28.18		28.09		
Protoxide of platinum,	32.44	31.73	32.00			
Sulphurous acid,	39.03				39.16	39.32

The salt, when dried at 100° (Cen.), lost upon being heated to 200° according to three different experiments, 3.90, 4.28, 4.16 per cent. of water; from which, for the composition of the salt containing water, is obtained the following formula:



according to which formula, the water should amount to 3.94.

When protoxide of platinum is diffused through water and sulphurous acid conducted therein, it is gradually, although difficultly, dissolved with a greenish brown color, and from this solution, by the carbonate of soda, the above described salt may be obtained.

If the salt is dissolved in only so much diluted sulphuric or hydrochloric acid as is requisite for its solution, and the fluid then evaporated by a gentle heat, in proportion as the sulphurous acid escapes, a yellow powder falls down, which is also a compound of the sulphite of the protoxide of platinum, with the sulphite of soda, but containing a smaller quantity of the latter than the above salt.

After being well washed and dried by 100° (Cen.)

1 Exp. 0.884 grs. of this salt gave 0.306 sulphate of soda=0.1341 soda; and 0.410 platinum=0.4432 protoxide of platinum.

2 Exp. 0.443 grs. gave 0.487 sulphate of baryta=0.1339 sulphurous acid.

These numbers give for the salt this formula—:



according to which the salt contains in 100 parts:

	<i>Calculated.</i>	<i>Experiment.</i>
		1 2
Soda,	14.81	15.17
Protoxide of platinum,	50.53	50.13
Sulphurous acid,	30.40	30.22
Water,	4.26	

The quantity of water was not directly found.

This salt is difficult to be obtained in a large quantity, because it is tolerably soluble in water, and after being well washed in order to free it from all impurities, but comparatively little remains upon the filter. When dissolved in water, its solution acts feebly acid; it is not precipitated by chloride of sodium, but its solution exhibits otherwise most of the properties of the first described salt.

Above I have sent you a translation of the researches made by a

young German chemist and myself in the laboratory of Professor Wöhler, at Gottingen. Should the paper not be too different from such as find admittance into your journal, will you please publish it.

Yours truly,

Nashville Dec. 16, 1842.

A. LITTON.

SURGICAL DIAGRAMS.

Dr. Gross, the Professor of Surgery in the Louisville Medical Institute, has just had completed, at his private expense, a series of magnified and colored drawings, which will add greatly to the interest and practical value of the future prelections from his chair. There are one hundred and fifty figures comprised in fourteen colored plates, illustrating the *diseases of the urinary and genital organs; diseases of the rectum; aneurism and diseases of the veins; diseases of the eye; dislocations of the hip-joint, and the manner of reducing them; hernia; polypus of the nose; diseases of the mammary gland; inflammation, abscess, mortification; malignant pustule; erysipelas; cancer of the lip; fungus hematodes; club-foot; hare-lip; and syphilitic diseases of the skin.* These drawings are made on a large scale, so as to be seen from any part of the room, and are executed in the highest style of art. Of their value we need not speak more particularly; it will be readily appreciated by those for whose benefit they are intended. On the whole, they render the material for instruction in this department quite as ample as that of any other in this richly endowed institution.

These figures were drawn and colored—partly from copies, partly from nature—by Mons. A. Suminski, a gentlemanly and accomplished Pole, who has sought refuge in this country from the persecutions of those who lord it over his native land. His merit as an artist is of the very first order. He draws with wonderful accuracy and rapidity, and his coloring is as perfect as art can make it. If any of our brethren, here or elsewhere, wish to be supplied with matters of this kind, we can recommend Mr. S. to them with great confidence.

C.

REPORT OF THE CHARITY HOSPITAL, NEW ORLEANS.

We are indebted to Dr. Barton for a copy of this report. The whole number of patients admitted into the hospital, from January 1830, to January 1843, a period of thirteen years, is fifty-nine thousand two hundred and one. Of these, forty-one thousand eight hundred and twenty are derived from foreign countries, chiefly from Ireland, Germany, England and France. Of the States, Pennsylvania has furnished the largest number, next comes New York, then Virginia, then Massachusetts, &c. Of the forty-one thousand eight hundred and twenty patients from abroad, Ireland alone has furnished *one half!* During the year ending January, 1843, there were four thousand four hundred and four persons admitted. Of these, three thousand five hundred and sixty had resided in the city less than three years, eight hundred and forty-one over three years; three thousand five hundred and sixteen were discharged, and seven hundred and four died. The most frequent diseases of that year were intermittent, yellow and remittent fever; rheumatism; dysentery; ulcer; syphilis; mania-a-potu; diarrhœa; contusions, &c.; their frequency being in the order named. We regret to learn that the financial affairs of the institution are so deranged. Its support is derived from private and public donations, and from Legislative grants; some of the latter have not been as productive as was anticipated. The expenditures have far exceeded the receipts, and the administrators of the establishment enter upon a new year with a load of debt amounting to \$60091,32, which at the end of the year will be increased to nearly \$80,000. To remedy this large and constantly increasing deficit, the report proposes that a tax be levied on the passengers arriving at the port of New Orleans, viz: on steerage passengers from foreign ports, \$2,00 per head; on deck and steerage passengers from the United States, fifty cents; on cabin passengers from foreign ports, \$3,00; on those from the United States, \$1,00; leaving the inhabitants of the city, who have so many other calls on their charity, entirely exempt. A law similar to this is already in force, but owing to a defect in its provisions, or in its administration, the receipts have fallen far short of the amount anticipated. The perfect reasonableness of the proposed capitation tax is, we think, sufficiently apparent, as it will to a great extent make the sources of the vast expenditure of the institution, subservient to its support. The annual in-

come under the new tax will, in the opinion of the Board, afford a permanent fund for the corporation; and it is to be hoped that the Legislature will comply with the suggestion, and not suffer so noble a charity to be destroyed. "*We cannot* close its doors," says the report; "the sick, destitute and distressed *must have relief*; we dare not, if we were even so disposed, shut the door of charity against them." The four thousand five hundred patients annually received into this hospital are of those "who cannot expect aid elsewhere." God forbid that such aid should be withheld. C.

We beg leave to call the attention of our readers to the card of Messrs. Erringer & Co., on the 4th page of the cover. They are ingenious and faithful workmen, and will, we are sure, be able to please the most fastidious. C.

THE
WESTERN JOURNAL
OF
MEDICINE AND SURGERY.

MARCH, 1843.

ART. I.—*An Experimental and Critical Inquiry into the Nature and Treatment of Wounds of the Intestines.* By SAMUEL D. GROSS, M. D., Professor of Surgery in the Louisville Medical Institute.

[No. 3.—CONTINUED FROM PAGE 141.]

8.—*Method of Jobert.*

Another mode of treating wounds of the intestines, involving their entire circumference, was proposed in 1822 by Mons. A. J. Jobert, of France, well-known as the author of a very valuable and elaborate treatise on the surgical diseases of the alimentary canal. It is founded on a series of experiments on dogs, and has recently been em-

ployed in several instances upon the human subject. The operation is divided into three stages, and the apparatus required for executing it consists of: 1. A pair of probe-pointed scissors; 2. A pair of dissecting forceps; 3. Two double ligatures, carefully waxed, rounded, and from six to eight inches long; 4. Four common sewing needles; 5. Several curved needles for stitching up the outer wound; 6. Sponges, warm water, pledgets of lint, adhesive plaster, square compresses, and a broad bandage.*

The patient, lying on his back near the edge of the bed, is placed in the most favorable manner for the thorough relaxation of the abdominal muscles. The prolapsed bowel is then washed with tepid water, and the edges of the wound, if ragged and bruised, are pared with the scissors. The next step is to dissect off the mesentery for several lines from each end of the injured gut, an operation which is commonly attended with some degree of hemorrhage, which has a tendency, however, to moderate the subsequent inflammation. When very profuse, it may become necessary to secure the divided vessels with temporary ligatures, which are to be removed before the parts are replaced into the abdomen. This constitutes the first stage of the operation.

The second stage consists in the introduction of the needles. To accomplish this the surgeon seizes the upper end with the left hand, while with the right, in which he holds a thread armed at each extremity with a straight and moderate sized needle, he traverses the anterior wall of the intestine from within outwards, at the distance of three lines from the edge of the wound, so as to form a loop with its convexity upwards, and which is now to be intrusted to an assistant. A second thread is then carried in the same manner through the corresponding part of the posterior wall, when the operator, either with his fingers or with a pair of

* *Traité Theorique et Pratique des Maladies Chirurgicales du Canal Intestinal*, par A. J. Jobert; T. i, p. 88. Paris, 1829.

dissecting forceps, inverts the coats of the lower end, and so places the serous surface within the tube. At this moment



there is apt to be some contraction of the intus-suscepted parts, which may be allayed, if necessary, by applying to them a weak solution of opium.

Having effected the inversion of the lower end, the surgeon introduces into it the index-finger of the left hand, for the double purpose of preventing it from unfolding itself, and of serving as a guide to the needles. With the thumb and fore-finger of the other hand, he now seizes the two needles of the anterior thread held at the same level, and carrying them along the radial margin of the finger which is in the

lower end, he pierces its anterior doubled wall from within outwards, the instruments being brought out at the distance of a line from each other. The needles attached to the posterior thread are conveyed along the ulnar border of the fin-



ger, and made to traverse the bowel at a point opposite to the preceding. Then, approximating the injured parts as closely as possible, he withdraws the finger, and gently pulling at the threads, thus gradually introduces the upper end into the lower. The invagination may be facilitated, if necessary, with any smooth, round body. Having restored the bowel into the abdomen, the ligatures are twisted together and placed at the inferior angle of the external wound, which is covered with adhesive strips, a compress and a bandage. On the fourth or fifth day, when the union is said to be sufficiently firm, the threads are withdrawn.

The object of this method is to bring the two serous surfaces of the bowel into contact with each other, and thus promote their re-union. Jobert states that he found in his experi-

ments upon dogs, at the expiration of the twelfth day, a linear cicatrice indicating the place of adhesion between the two ends of the gut, unaccompanied, in the majority of cases, by any particular dilatation of the upper one. Internally there was a sort of artificial valve, the result of the invagination, which floated about in the tube, and formed an inclined plane which allowed a free passage to the alimentary bolus. The mucous membrane appears to have been uninterruptedly continuous. In the five dogs upon which this operation was performed by Jobert, perfect recovery took place. There was no serious disturbance in the functions of the animals, not even in that of defecation.*

There are, I believe, only two cases on record in which this course of proceeding was attempted on the human subject. The first is that recently communicated by Mons. Julius Cloquet to the Royal Academy of Medicine of Paris.† The patient was affected with strangulated hernia, attended with mortification of the entire cylinder of the intestine. After having cut away the whole of the sphacelated parts, Cloquet invaginated the divided extremities, and maintained them in apposition by the method of Jobert. As soon as it was ascertained that nothing escaped from the tube on pressure, the bowel was returned, and the abdominal wound secured in the usual manner. When the case was reported fifteen days had elapsed since the operation, without the occurrence of any untoward symptoms, and with the prospect of a speedy cure.

The other case fell under the observation of Professor Berard, who presented an account of it, a few years ago, to the Anatomical Society of Paris. He was called to a female who, in a paroxysm of mania, cut off two feet of her small bowels. He treated the case according to the process of Jobert, but death occurred in thirty six hours without the slightest adhesion between the contiguous surfaces.‡

* Op. cit. p. 91-'2-'3.

† Archives Generales, T. xi, 648.

‡ London Medical Lancet for 1835-'6, p. 45.

The method of Jobert was modified, soon after being made known, by Julius Cloquet, the distinguished anatomist and surgeon. Instead of inverting the lower, and introducing the upper end, he advises simply to pass the needle through the walls of the intestine, a few lines from the division, and to draw the lips of the wound against each other, until the serous surfaces are brought fully into contact. To maintain them in this situation several sutures are required, the ends of which are to be cut off near the knots, when the bowel is returned, and the operation completed.*

Finally, Jobert has proposed the following expedient,† which, it appears, he has also employed with success in his experiments on the inferior animals, though he has not tried it on the human subject. Taking care to distinguish the extremities of the divided gut from each other, he traverses the anterior wall of the upper with a silk thread armed with two needles. Both needles are then carried to the inferior end, and passed separately through the anterior wall from within outwards, when by gentle tractions the operator inserts the extremities into each other, to the extent only, however, of about one line and a half to two lines, without any previous introversion of their edges. The needles are now to be given to an assistant, when, taking another, which should be exceedingly fine, and armed with a very delicate thread, he plaits the serous membrane of the upper end, and afterwards that of the lower. The ligatures are to be tied with a double knot, in such a manner as to invert the inferior extremity, or turn it in upon itself, and thus bring the serous surfaces in apposition with each other. The ends are left hanging out at the external wound. Three sutures made in this way are generally sufficient to preserve the relations of the parts.

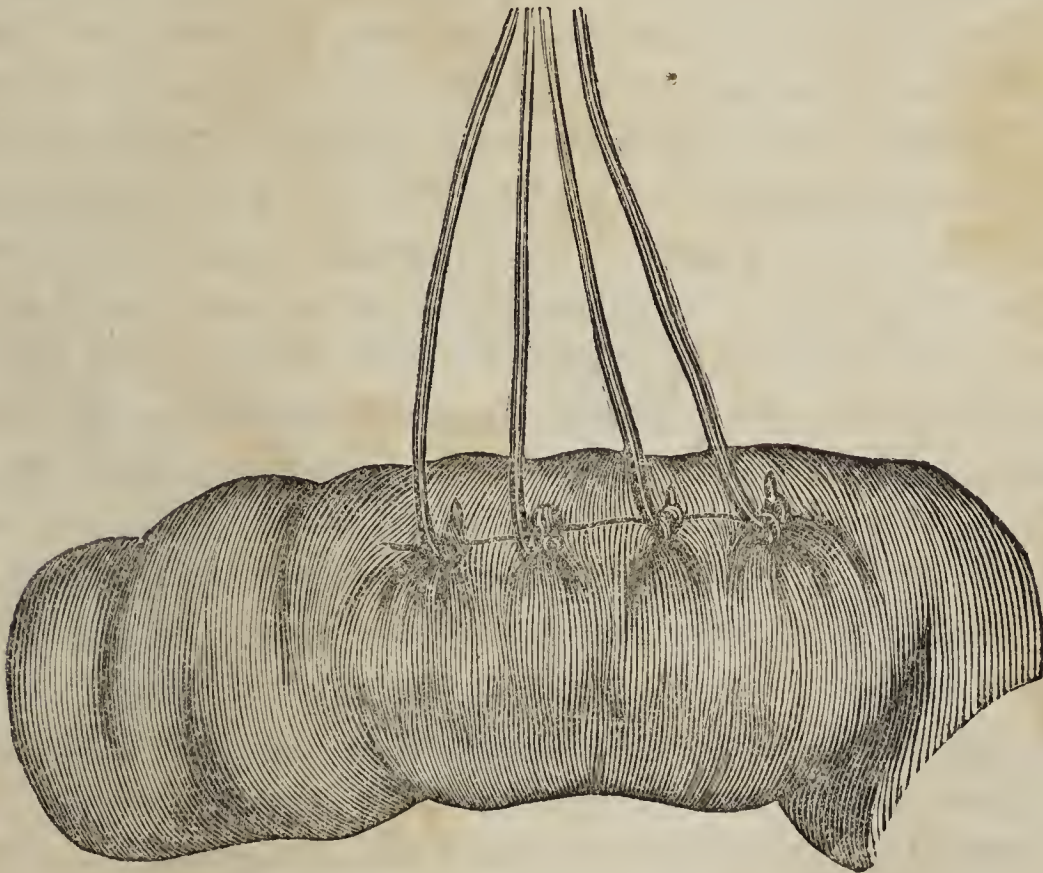
Jobert does not consider this method applicable to young subjects, on account of the great fragility of the serous mem-

* Jobert, *op. cit.* T. i, p. 93.—Tavernier's *Operative Surgery*, translated by the author, p. 277.

† *Op. cit.* T. i, p. 93.

brane and the facility with which it is torn. Lately, however, he employed it upon a pup with the most perfect success; the animal speedily recovered, and the functions of the digestive canal were executed with their accustomed vigor.

In longitudinal wounds, Jobert employs a procedure very similar to that of Lembert, described in the next section, that is, he inverts the edges, and keeps them in contact by several points of the interrupted suture. The ligatures should be placed so near each other as not to permit any protrusion of the mucous membrane, or, what is the same thing, they should produce, when tied, the most perfect apposition of the serous surfaces. The extremities of the sutures may be twisted together and brought out at the external orifice, as in the method of Le Dran; or, what is preferable, they may be cut off close to the knots, or left hanging out separately. In the former case, they will fall into the cavity of the bowel;



in the latter, they may be pulled away at the end of five or six days.*

* Malgaigne, *Manuel de Medecine Operatoire*, p. 531. Paris, 1837.

I subjoin the following experiments in illustration of Mons. Jobert's first method.

EXPERIMENT I.—On the 28th of May, assisted by Dr. Cole-scott, Dr. Hagan, Mr. Mullen, and Mr. Church, I divided the ileum of a small young dog, and inserted the superior into what was supposed to be the inferior end. The operation was exceedingly difficult and perplexing, nearly half an hour elapsing before it was completed. With all the skill I could command it was impossible to make the ends firmly meet in their entire circumference. No vessels required to be tied. The gut was carefully returned, and the extremities of the two ligatures were brought out at the abdominal wound, which was closed in the usual manner. The animal vomited several times soon after the operation, and refused to take food on the following day, but not water, which he drank with avidity. Late on the third day he died.

The dissection disclosed the following appearances. About two ounces of sero-purulent fluid were contained in the peritoneal sac, which exhibited marks of high inflammation in the greater part of its extent. The omentum covered, and adhered to, the whole of the intestinal convolutions. The small bowels were completely matted together—the lips of the wound were in contact but not invaginated—and the continuity of the tube was established externally by plastic lymph. The ligatures still retained their situation. No fæcal matter was discoverable in the effused fluid, and it was evident that the peritonitis, which destroyed the animal, had been induced by the violence inflicted upon the gut in my efforts to invaginate the divided extremities.

EXPERIMENT II.—Immediately after the last experiment I repeated the method of Jobert upon another dog, somewhat larger than the former, and succeeded, after much difficulty, in effecting the invagination. The operation occupied fully thirty-five minutes; it was exceedingly painful, and one of the ligatures lost its hold so much that I was obliged to remove and re-introduce it. Several of the mesenteric arteries bled rather freely, but did not require to be se-

cured. The dog suffered considerably for the first three days, after which he became more lively, and continued so until the fifth of June, when he evinced symptoms of severe indisposition, under which he succumbed on the seventh, the experiment having been performed on the 28th of May. He took food only a few hours before. The ligatures escaped on the fifth day.

The abdominal wound was nearly cicatrized with a small plug of omentum interposed between its lips. The peritoneum exhibited no unnatural redness or vascularity. The small bowel, for about three feet and a half, was enormously distended with gas and fæcal matter, being at least five times as large as in health; its coats were thin, soft, and easily torn; and the mucous membrane was highly inflamed in patches varying in size from a dime to that of a Spanish dollar. The wound was situated near the ileo-cæcal valve with a mass of omentum and the ascending colon intimately adherent to its outer surface. On laying open the tube it was found to be completely obstructed, the inferior end, which was the invaginated one, having become firmly united to the inner surface of the upper, into which it projected in the form of a mammillated protuberance, six lines in length, tapering at its free extremity, and perfectly closed. The part of the small intestine which intervened between the wound and the ileo-cæcal valve was slightly diminished in its caliber, as was also the entire colon: the latter contained scarcely any fæcal matter. In the stomach was a small quantity of undigested food. All the other abdominal viscera were sound.

Such were the results of the above experiments, which are all I have performed with a view of testing this method. It may be supposed that they are not sufficiently numerous to entitle me to deduce from them any general conclusions. I think otherwise. Independently of their unfavorable termination, the difficulty which attended their execution would be enough to deter me, under any circumstances, from resorting to it in the human subject. A practitioner may err through ignorance, but when he does so designedly or despite the

most abundant light, neither his own conscience nor the voice of the profession will excuse him. If the method of Jobert were the only expedient of the sort, we might be justifiable in employing it; but, when there are so many others which are all decidedly superior, we should be aware how we give it our sanction. As it is, I do not hesitate to denounce the proposal as unnecessarily harsh in its execution, uncertain in its results, and altogether unwarrantable in the present state of our knowledge. Of the improvement suggested by Cloquet I have no personal knowledge; nor can I say any thing more definite of Jobert's other expedient, described in a preceding page, and which appears to be merely a modification of that of Lembert.

9.—*Method of Lembert.*

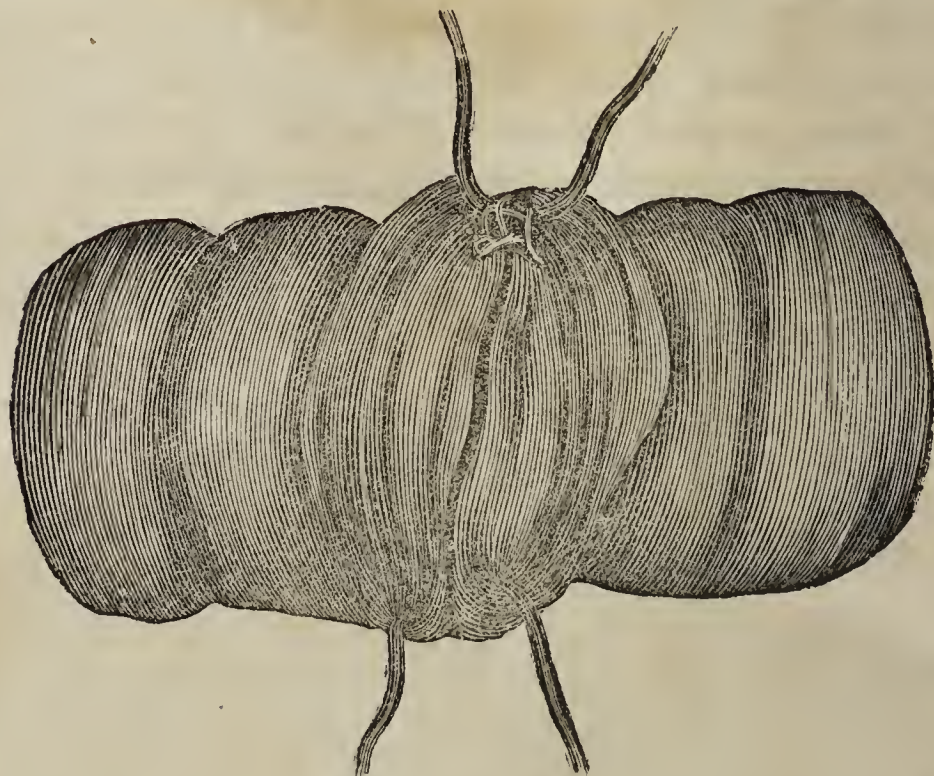
A very ingenious process of sewing up a wounded intestine, now to be noticed, was proposed in 1825, by Mons. Lembert of Paris, in the second volume of the "*Repertoire Generale d'Anatomie et de Physiologie Pathologique.*" The number of needles to be employed must correspond with the number of sutures designed to be made; they should be long, slender, and armed each with a small but strong and well-waxed thread. The drawings will fully explain the nature of the operation, which is performed in the following manner.* A short stitch, including only the peritoneal



and muscular coats, is to be taken up on one side of the wound, distant about a quarter of an inch from its edge;

* London Lancet, vol. xi, p. 848.—Johnson's Medico-Chirurgical Review, vol. xxi, p. 299.—Velpeau, *Medeciné Operatoire*, T. 4, p. 137.—Vidal, *Traité de Pathologie Externe et de Medecine Operatoire*, T. 4, p. 506.

the needle is then carried across the solution of continuity, and a similar stitch taken up on the opposite side: in this way one suture is to be placed after the other, the interval between each two varying from three to four lines, and when they are all arranged they are to be drawn firmly together and tied with a double knot. By this proceeding, the incision is completely closed,* the serous surfaces are intimately



approximated, and the lips of the wound are inverted or turned inwards, forming a kind of valve, about the twelfth of an inch long, within the tube. The ends of the threads being cut off near the knots, the bowel is returned into the abdomen as near as possible to the outer opening, and the case treated as under ordinary circumstances. Mons. Lembert has observed that the sutures usually escape into the cavity of the gut by the seventh or eighth day, after having cut through the parts which they embraced by ulcerative action, and that the plastic exudation which serves as a bond of union between the wounded and the adjacent textures, becomes very quickly organized, and remains a considerable period before it is absorbed.

* The edges of the wound, it will be observed, are only partially united in the drawing, as there are only two sutures, which are not adequate to effect complete apposition and inversion.

Cases are reported in which the proceeding here described is said to have been successfully employed, not only in the inferior animals, but in mortified hernia and wounds of the intestines of the human subject. I subjoin the following, being all I can find upon record.

CASE I.—Strangulated congenital hernia of the left side—patient forty-one years of age—bowel accidentally wounded in dividing the stricture—opening an inch and a half long—two sutures—recovery in a month.

This case, related by Jobert, occurred in the hands of Professor J. Cloquet, and is the first of the kind on record.* Nicholas Lejeune, forty-one years of age, of middle height and spare habit, entered the St. Louis hospital of Paris, on the 13th of July 1826, with a strangulated congenital hernia of the left side, for which he had always been obliged to wear a truss. The tumor, which was of large size, was soft and fluctuating, the patient was affected with nausea and occasional vomiting, the pulse was small and frequent, the thirst urgent, the breathing hurried and interrupted, and the abdomen extremely sensitive, with great prostration of strength. Every attempt at the taxis having failed, Cloquet proceeded to perform the operation. The portion of bowel included in the swelling was highly inflamed and enormously distended. The stricture was formed by the neck of the sac. This was divided with the bistoury, when he tried to effect reduction but failed. The instrument was therefore introduced a second time, to enlarge the incision, and as he was

* This case is published by Jobert, (*op. cit.* T. i, p. 280,) as having been treated according to his own method, a circumstance which may be explained by the fact that he claims to be the discoverer of the process above mentioned, and now usually attributed to Lembert. Indeed, the question of priority does not seem to be fully decided; but as this does not impair the merits of the operation, we shall not stop to settle it one way or the other. Mr. Lawrence, (*Treatise on Ruptures*, p. 306,) who quotes the case from Jobert, says it was treated according to Lembert's method; and Velpeau, (*Medecine Operatoire*, T. iv, p. 143,) evidently considers it as an example of that kind.

withdrawing it a portion of the intestine, held by one of the assistants, was accidentally opened to the extent of an inch and a half, followed by an escape of gaseous and fæcal matter. With a common needle he immediately sewed up the wound, entering it four lines from the cut edge, and bringing it out at about one line: having carried it in the same manner through the other side, he easily inverted the margins of the aperture, and thus approximated the serous surfaces. Having placed two sutures, he fastened them with a double knot, and, satisfied that nothing escaped, cut off the ends close to the bowel, which he now pushed into the abdominal cavity. Simple dressings were applied to the outer wound, and secured by a T bandage. All the unfavorable symptoms rapidly disappeared, and the man left the hospital cured on the 12th of August.

CASE II.—Patient fifty years of age—strangulated crural hernia of the right side—excision of three inches of mortified bowel—number of sutures not stated—death in five or six weeks from the use of indigestible food.

The second case in which this method of enteroraphy was attended with a favorable result, occurred a few years ago in the practice of Professor Dieffenbach, of Berlin.* The patient, a strong, tall husbandman, fifty years of age, had suffered for fifteen days from strangulated crural hernia of the right side. Various attempts had been made at reduction, but without success, by other surgeons, and the probability was that the constricted parts had sloughed, and given rise to

* This case was originally published in the "*Wochenschrift für die gesammte Heilkunde*," Nov. 26, 1836. The British and Foreign Medical Review (vol. iii, p. 517,) in noticing the case, states that the strangulation existed only fourteen days, and that it was inguinal, not crural hernia. Mr. Lawrence (Treatise on Ruptures, p. 362,) however, who obtained his information from the "*Archives generales de Medecine*" for March 1837, makes out the case to have been one of crural hernia, and so does the writer in the London Lancet for June of the same year, and who translated his article from Græfe and Walther's Journal, vol. xxiv, No. 3.

an effusion of fæcal matter. This, indeed, was found, on laying open the swelling, to be the case. The fold of intestine contained in the sac presented, near its upper part, an aperture large enough to admit the thumb. As the fæces did not readily escape, even after the division of the stricture, owing partly to the narrowness of the hernial opening, and partly to the constriction of the gut, the operator destroyed the preternatural adhesions and drew the canal for some distance out of the abdomen. He then excised the whole of the mortified portion, which was at least three inches in length. The corresponding part of the mesentery was removed with a pair of scissors, and a small artery, which was divided in this step of the proceeding, was secured with a ligature, the extremities of which were cut off close to the knot. The open ends of the bowel, which were held by assistants, contracted to such an extent that they would not admit any thing larger than a writing-quill, and the mucous coat was everted. Having united the angular wound of the mesentery with a very fine thread, the lips of the intestinal breach were treated according to the process of Lembert, when the parts were gently replaced within the abdomen. Shortly afterwards castor-oil was administered in large quantities, which was subsequently repeated with croton-oil, and the patient was ordered to remain for sometime on his feet; copious evacuations ensued, with great improvement in all the symptoms. For a few days the treatment was mildly antiphlogistic, and the only remedy given was some castor-oil in laurel-water. The stools soon became natural, the external wound discharged healthy pus, and in a month the patient was so well that he was able to resume his occupation.

The man continued in excellent health for several weeks, when, after severe labor in the field, and the use of very indigestible food, he was suddenly seized with violent pain in the abdomen, vomiting and constipation, under which he died. Two diseased conditions were found within the abdomen. In the left lumbar region a portion of small bowel had coiled around another portion, which it had thus strangulated: above

this point the ileum and jejunum were much inflamed, adherent, covered with flakes of lymph, and distended with excrementitious fluid, which was also found in the duodenum and stomach. The gut below the seat of the strangulation was empty and contracted, descending in this state in front of the lumbar vertebræ on the right side, where several convolutions were closely adherent to the walls of the abdomen and to each other. In detaching them, a few drops of pus escaped, and a knot of silk was met with, indicating the exact spot at which the ligature had been inserted, and consequently the place where the tube had been divided. On cutting it open, the parts were found to be united through the medium of a smooth, even cicatrice, half a line broad, and interrupted merely at two points by so many threads, which were still adherent to the surface. There was no perceptible contraction of the caliber of the tube.

CASE III.—Accidental wound of the intestine in operating on crural hernia—patient fifty-four years old—two sutures with the ends twisted together and brought out at the external opening—complete recovery.

A third successful example of Lembert's process has been recently published by Mons. Fleury, in a valuable memoir on intestinal sutures in the "*Archives Générales de Médecine*" for March 1837. In operating on a crural hernia, in a lady fifty-four years of age, a wound was accidentally inflicted on the intestine, which was obscured by adhesions. When the latter had been destroyed, a portion of gut was drawn out of the abdomen, exhibiting a deep mark from the pressure of the crural ring. Mons. Jobert, the operator, determined to close the cut in the intestine by sutures applied in the manner already described, which he accordingly did.* The threads being then united, gentle torsion was made which brought the external edges of the wound together, and placed the serous surfaces in apposition. The bowel was then returned, the ends of the ligatures were left hanging through the outer opening, where they were secured by adhesive plaster, and

* See page 167.

ordinary dressing was applied. The symptoms immediately assumed a more favorable aspect, the bowels acted well on the fourth day, one of the ligatures was withdrawn on the sixth, and the other on the eighth day, and in a month the wound in the abdomen was perfectly cicatrized. At the end of the third month the patient was in excellent health, the functions of the alimentary canal being performed without any irregularity or impediment.*

CASE IV.—Gunshot wound of the arch of the colon—three sutures—the ends of the ligatures cut off close to the knots—complete recovery.

A soldier, whose case is mentioned by Mons. Baudens,† was wounded by a ball, which entered three inches to the left of the umbilicus, and passed out at the back not far from the spine. A finger conveyed into the wound readily discovered a large opening in the arch of the colon, which was accordingly drawn out of the abdomen; the edges of the fissure were inverted, and maintained by three points of suture, introduced in accordance with Lembert's method, the ligatures being cut off close to the knots. The man was bled several times at the arm soon after the accident, and subsequently the abdomen was covered with leeches. Under this treatment he rapidly recovered.

Finally, Velpeau alludes‡ to a fifth case in which this operation was attended with favorable results in the human subject. It fell under the observation of Liégard, a French surgeon, but I am not in possession of the particulars.

In the following cases, in which the method of Lembert was employed, death was produced, in two, by causes apparently unconnected with the operation, and in the third by peritoneal inflammation. The two first, which both occur-

* British and Foreign Medical Review, vol. iv, p. 512.—Lawrence on Ruptures, p. 307.

† Clinique des Plaies D'Armes et Feu, p. 336. Paris, 1836.

‡ Medecine Operatoire, T. iv, p. 143.

red in the practice of Mons. Jobert, I shall relate as detailed by Mr. Lawrence in his *Treatise on Ruptures*.

CASE I.—Two incised wounds, one transverse, the other longitudinal, the first being united by four, the second by eight points of suture—the ends of the ligatures brought out at the external opening—the patient twenty-three years of age—death in thirty-eight hours from fæcal effusion.

A man, twenty-three years of age, was stabbed in the abdomen with a knife, cutting a portion of intestine, which protruded at the wound, in two places. One of the apertures was transverse, and ten or twelve lines in length; the tunics being completely divided only to the extent of about two-thirds of an inch. It was united by four points of suture, with a common needle and a single thread, carried through the parts in the manner above mentioned. The extremities of the ligatures were then twisted together, which had the effect of approximating the margins of the incision by their external surfaces, and consequently of bringing the opposed serous membranes into contact with each other. These threads were next held by an assistant, while the longitudinal wound, ten or twelve lines in length, was united in a similar manner by eight points of suture. The intestine was then replaced in the abdominal cavity, the ends of the threads being retained on the outside. The patient died in thirty-eight hours in consequence of effusion into the peritoneal cavity from other penetrating wounds of the intestinal tube. The sutures in the wounds of the bowel were covered by a layer of lymph, without any appearance of pus. No thread was visible on the interior; nor was there any interval between the edges of the solutions of continuity. The longitudinal wound formed a projection of two lines in height. The lips of the division still remained in contact even after the removal of the threads; on dragging them apart it was found that they had been united by plastic lymph.

CASE II.—Irreducible scrotal hernia—rupture of the bowel by a blow—opening closed by two points of suture—death in less than twenty-four hours.

In this case, the patient, who had been affected with a large irreducible scrotal hernia, received a violent blow on the swelling, followed by symptoms indicating injury of the intestinal canal. On opening the tumor a wound of the bowel was discovered, which was united in the same manner as in the former case, by two points of suture. Death ensued in the night after the operation. The edges of the intestinal wound were found united by plastic lymph, as in the preceding instance.

CASE III.—Two gunshot wounds eight inches from each other—excision of the whole of the injured part—ligation of the mesentery—number of sutures not mentioned—death on the third day from fæcal effusion caused by an opening in the cæcum.

Finally, a third unsuccessful case is recorded by Mons. M. L. Baudens, in the work already quoted.* A soldier of the thirteenth regiment of the line was struck by a ball which entered a little to the right of the umbilical region, and passed out behind in the corresponding loin. On introducing the fore-finger into the anterior opening, which was a little larger than usual, the surgeon came in contact with two flattened balls, which had been forced from the man's watch-fob into the abdomen at the moment of the accident. Having extracted these foreign bodies, he conveyed the finger down to the surface of the bowel, which, from its hard and contracted state, he at once supposed to be injured. The affected portion of the tube was then withdrawn, and the simple slit-like aperture which it presented closed with three points of suture. He was about to return the protruded bowel, when, by some exertion of the patient, a fresh portion descended, which was found to have been completely perforated by the ball, eight

* Clinique des Plaies D'Armes et Feu, p. 333.

inches from the seat of the other injury. Believing that the best plan would be to remove the whole of the affected part, he accordingly excised it, having previously included the mesentery in a ligature, to prevent hemorrhage. The edges of the new wound were then brought into contact, and retained by Lembert's process; the intestine was reduced, and the ligature just alluded to left hanging out at the external opening. Death occurred on the third day. The sutures were covered with a considerable quantity of plastic lymph, which was already organized; strong adhesions existed between the injured parts and the rest of the small bowel; the perforated omentum had formed extensive attachments; and some coagulated blood was detected between the intestinal convolutions. In prosecuting the dissection, Mons. Baudens discovered an opening in the cœcum with an effusion of fæces, which had been already bounded by the adhesive process; the peritoneum, at this part, was red and very much inflamed, and this at once accounted for the fatal termination of the case.

The late Baron Dupuytren proposed, a few years ago, a modification of Mons. Lembert's method, consisting mainly in the use of the continued instead of the interrupted suture, as recommended by the latter surgeon. The principal advantages attributed to it are, that it is more simple, and that it insures more accurate apposition of the edges of the wound, thereby lessening somewhat the risk of stercoraceous effusion.*

To execute this suture the surgeon takes hold of one end of the bowel with the left thumb and fore-finger, the latter being within the tube, and carries a needle through its tunics a line and a half from the wound, and as near as possible to the mesentery. Leaving a length of thread of about five inches, he intrusts this to an assistant, while he himself grasps the other end, which he treats precisely in the same manner. Having made these two preliminary points, the nee-

* *Traité Theorique et Pratique des Blessures Par Armes de Guerre*, rédigé par Paillard et Marx, T. i, 186. Paris, 1834.

dle is conveyed alternately from one side of the breach to the other, as in the glover's suture, until the entire track is sewed up. The thread being cut off at the same distance from the bowel as at the other angle of the wound, the different stitches are adjusted with a pair of forceps and rendered equally tense throughout. The parts are now returned into the abdomen, and the ends of the ligature brought out at the external incision, where they are to be left for five or six days until the adhesive process is sufficiently advanced, when they may be gently pulled to encourage their separation. If this should be attended with much difficulty, the protruding extremities may be cut off on a level with the skin, and the remainder left to make its way into the interior of the canal. Or, the ends may be cut off in the first instance, and a thread tied to the central loop of the suture before the bowel is restored to the abdomen. By pulling this, when the proper period has arrived, the suture may be easily withdrawn.

The method of Lembert may be further illustrated by the following experiments. They amount altogether to twenty-three in number, and were performed with great care. It will be seen that all, excepting four, had a favorable termination, notwithstanding that the wounds in some of them were of unusual extent. In three, death was produced by peritoneal inflammation, from the escape of fæcal matter; in the other, the animal perished without any obvious or assignable cause. In three of the cases the wound was transverse, in the other longitudinal. In the latter—Experiment II—it was three inches and a half in length, and closed by eleven sutures; death occurred on the thirteenth day from the extravasation of fæcal matter, occasioned by the imperfect union of the edges of the incision at its upper angle. All the sutures, except two, had disappeared, the wound was scarcely more than two inches long, and the reparation had been effected mainly through the intervention of an adjacent fold of the small intestine. The caliber of the tube was of the natural size in nearly all the cases in which the parts were examined after death. In a considerable number of them the consolidation of the lips

of the wound was remarkably perfect, even at a very early period after the experiment, much more so, indeed, than after the use of the continued or interrupted suture.

a.—*Transverse Wounds.*

EXPERIMENT I.—Complete section of the ileum—four sutures—death in thirty-seven hours from peritoneal inflammation.

June 17, 1842, in the presence of Dr. McDowell, Professor Miller, Dr. Hagan, and Dr. Colescott, I opened the abdomen of a middle-sized and full-grown dog, and exposed a fold of the small bowel, two feet from the ileo-cæcal valve, which was divided entirely across, and the wound closed with four interrupted sutures, equidistant from each other. The animal bore the operation well, but he soon sickened, and died in thirty-seven hours from the time he was removed from the table. The outer wound was feebly united by lymph, and free from omentum. The abdominal cavity contained six ounces of reddish serosity, and the peritoneum, both visceral and parietal, was extensively inflamed. The bowels adhered to the omentum and to each other at various points, and in several of the interstices between them was a small quantity of mucous and fæculent matter. The sutures retained their original situation, and their surface was only partially coated with lymph. On each side of the mesentery the edges of the wound were everted, with a corresponding opening, scarcely two lines in length, through which the alvine fluid had escaped.

EXPERIMENT II.—Complete division of the small intestine—six sutures—the animal killed at the end of the ninth day.

Assisted by the gentlemen who witnessed the preceding experiment, I made a transverse section of the small bowel, and retained the divided edges by means of six interrupted sutures, placed at equal distances from each other. The animal, an old slut, bore the operation without much resistance,

and suffered apparently very little afterwards. At the end of the ninth day, the cure being considered as established, she was killed. The external wound, which presented nothing unusual, contained a process of omentum: there was no adhesion of the injured part to the adjacent folds of the gut or to the wall of the abdomen, but it was united very firmly to the epiploon, which thus served to point out its situation. The peritoneum was free from inflammation, and the same was the case with the mucous membrane, even in the immediate vicinity of the lesion.

EXPERIMENT III.—Complete section of the small bowel—six sutures—fæcal effusion—death from peritoneal inflammation.

The subject of this experiment was a young dog of middle size, in which the bowel, cut entirely across, was sewed up with six sutures, as nearly as possible equidistant from each other. The operation, which was borne well, was performed on the 14th of July, and death occurred on the seventeenth, or about three days and a half after; the animal having all along refused food, and also, during the last forty hours, drink. On examination I discovered about five ounces of thin, dirty colored fluid, evidently of a fæculent nature, with high marks of peritoneal inflammation. Very little adhesion existed between the bowels, except at the seat of the wound, the edges of which were widely separated from each other, all the sutures, save one, having lost their connexion. Small gangrenous patches were seen in different parts of the ileum, and the mucous membrane was deeply inflamed at several points. The external wound was firmly united.

EXPERIMENT IV.—Entire division of the small intestine—six sutures—fæcal effusion—death from peritoneal inflammation.

From a small but stout and full-grown dog, I removed a knuckle of the ileum, which was cut completely across, about two feet from the ileo-cæcal valve. The edges were brought

together, and maintained in apposition by six sutures, equidistant from each other. The dog struggled a good deal during the operation, from the effects of which, however, he speedily recovered, taking food and drink as usual. At the end of the seventeenth day, being in good plight, and the cure fully established, he was killed. The following appearances were observed on dissection.

The abdominal wound was completely healed, a process of omentum being, as usual, prolonged into it. The injured bowel adhered to a neighboring fold for about three inches, through the medium of a smooth and polished texture resembling serous membrane. A small process of the epiploon was united to the outer surface of the wound, and exhibited a dark modena appearance, from the effusion, probably, of blood at the time of the operation. The omentum was spread over the whole surface of the bowels, which were entirely free from adhesions, except at the place before alluded to. Their movements must therefore have been altogether unimpeded. Internally, the reparation was perfect. The sutures had all disappeared, and the villous edges were not only in apposition with each other, but continuous throughout their entire extent. In fact, the cicatrization could not have been more beautiful or complete. The caliber of the tube at the seat of the lesion was of the natural size.

EXPERIMENT V.—Complete division of the upper part of the small bowel—six sutures—the animal killed at the end of the sixteenth day.

The dog employed in this experiment was small but full-grown, and had fasted twenty-four hours. The bowel was divided within fifteen inches of the pyloric extremity of the stomach, and the wound closed by six sutures. No untoward symptoms followed the operation, which was borne without any unusual resistance. He was killed at the end of the sixteenth day, being apparently well but somewhat emaciated. The intestines were every where free from morbid attachments. The omentum adhered around the inner wound,

and projected into the outer, precisely as in the preceding experiment. Half of the villous portion of the breach was completely repaired, the remainder only imperfectly, three of the sutures being still retained, and the lips, although in contact, not firmly united with each other. The mucous membrane was of a pale rose color, but not inflamed, and the caliber of the tube natural.

EXPERIMENT VI.—Transverse wound six lines in extent—three sutures—the animal killed at the end of a fortnight.

A transverse incision, six lines in length, was made into the lower portion of the ileum, and closed by three points of suture. The dog, a small young tarrier, was scarcely affected by the operation, took food as usual, and was quite playful. At the end of a fortnight he was killed.

A plug of omentum was prolonged into the outer wound, which was nearly cicatrized. The injured bowel adhered to the mesentery and to a neighboring knuckle, by a small quantity of firm, organized lymph, partially transformed into serous texture. Internally, the wound was beautifully repaired, the villous edges being every where in contact, and in the greater part of their extent inseparably connected with each other. One suture, however, still remained, with well-marked traces of the other two. The tube was fully as capacious at the seat of the injury as elsewhere.

EXPERIMENT VII.—Transverse section of the small bowel—four sutures—recovery.

In this experiment the small intestine was divided entirely across, and the wound closed by four sutures, which had the effect of completely inverting the serous surfaces, as the tube was unusually narrow. The animal, a small slut, soon recovered from the shock of the operation, and escaped from her box on the seventh day, in good health. She was seen in the street more than a fortnight after; at a period, consequently, when it may be supposed she had entirely recovered.

EXPERIMENT VIII.—Complete division of the small bowel—four sutures—death in forty-four hours without any assignable cause.

Having drawn out a fold of the ileum and cut it completely across, I approximated the edges of the wound with the same number of sutures as in the preceding experiment. These had the effect of closing the breach in its entire extent, and of bringing the serous surfaces beautifully together. The dog seemed pretty comfortable for the first six or eight hours, when he began to evince signs of severe suffering, in which he died forty-four hours after he was removed from the table. No attempt at re-union was visible in the outer wound. The edges of the inner wound remained inverted, except at one of its mesenteric angles, where they were slightly separated; scarcely any lymph was discoverable upon them, and the sutures were as distinct and as perfectly in their places as at the moment of their introduction. The peritoneum in the vicinity of the injury was slightly inflamed, but there was no adhesion of the intestines to each other or to the walls of the abdomen. On laying open the tube, the inverted edges were found to form a small valve-like prominence, which was not sufficient, however, to produce any obstruction. What was the cause of death remains therefore a mystery. The probability is that the animal died from the shock of the operation.

EXPERIMENT IX.—Complete section of the ileum—six sutures—the animal killed at the end of the twenty-second day.

The subject of this experiment was a large healthy dog that had fasted for twenty-four hours. The small bowel was cut completely across within a foot of the ileo-cæcal valve, and the divided parts were approximated by means of six sutures, equidistant from each other. The dog made some resistance during the operation, and appeared to be considerably exhausted by it. Nevertheless, he rapidly recovered, and was permitted to live till the end of the twenty-second day, when he was killed.

The outer wound was completely healed, and projecting into it was a slender process of omentum. There was no adhesion between the bowels, or between these and the surrounding parts, except at the wound, the surface of which was covered by a mass of epiploon. The tube, which was of the natural size, presented two small sacs or pouches, one above and the other below the seat of the breach, which was perfectly cicatrized, the villous margins being every where continuous with each other. The mucous membrane had a healthy appearance; and the animal, notwithstanding his long confinement and irregular feeding, was in good order.

EXPERIMENT X.—Two transverse wounds each half an inch in length—one closed with two, the other with three sutures—the animal killed at the end of the twenty-second day.

From a small dog that had fasted nearly a day, I removed a loop of the small intestine, and made two transverse incisions into it, each six lines long, the first four, the other seven inches from the cœcum. One of these I closed with two, the other with three sutures. The animal bore the operation without flinching, and lived, without any untoward occurrence, until the end of the twenty-second day, when he was killed. The abdominal wound exhibited the usual appearances, that is, it was perfectly cicatrized through the intervention of a plug of omentum. The bowels were free from adhesions, except at the seats of the injury, to each of which was attached a small process of the epiploon. One suture remained in each wound, but it was evident that their presence had not been productive of any mischief, as the continuity of the villous edges had been perfectly re-established. Indeed, the union could not have been more satisfactory. The diameter of the tube was natural.

b.—*Longitudinal Wounds.*

EXPERIMENT I.—Longitudinal wound two inches in length—seven interrupted sutures—the animal killed on the twenty-fourth day.

This experiment, together with some of the succeeding ones, was witnessed by Professor Miller and Dr. McDowell. It consisted in making a longitudinal incision, two inches in length, along the convex surface of the small bowel of a middle-sized slut, and in bringing the edges together with seven sutures at equal distances from each other. The animal suffered a good deal for the first twenty-four hours, after which she became comfortable, and so continued until the twenty-fourth day, when, being in good condition, she was killed. The external wound was perfectly cicatrized, and contained no epiploon. The small bowels were matted together, as well as to the omentum, by dense, organized lymph, but they did not adhere to the wall of the abdomen, nor was there any unnatural redness of the peritoneal surface, except at the seat of the injury, where a small ecchymotic spot was visible. On laying open the wounded intestine, the breach was found to be perfectly and beautifully cicatrized in its entire extent, save a small point at each extremity, where the union was not so complete. At one of these places was a small abscess containing a few drops of pus and two ligatures, one partially, the other wholly detached. The injured part adhered firmly to a neighboring fold of the gut, and was in no wise contracted or diminished in its caliber. The adhesion of the villous edges of the wound was more perfect, excepting at the extremities just mentioned, than I ever saw it before in so short a time.

EXPERIMENT II.—Longitudinal wound three inches and a half long—eleven sutures—death on the thirteenth day from fæcal effusion.

This experiment was performed immediately after the last, and with the assistance of the same gentlemen. The wound, extending for three inches and a half along the convex surface of the small bowel, was closed by eleven sutures, as nearly as possible equidistant from each other. The animal was exceedingly fractious, and was much exhausted by the operation, in other respects already sufficiently tedious. For the first few days he was drowsy and listless, refusing such food as was offered him. Before the expiration, however, of the middle of the first week he became more gay, and in a short time appeared to be quite well. He remained thus until the twelfth day, when he was taken sick, and on the thirteenth he expired.

The small bowels were extensively united to each other and to the omentum, a process of which projected into the outer wound. The inner wound had contracted to two inches, and all the sutures, except two, had disappeared. The edges were nearly four lines apart at their centre, elevated, and rounded off, the bottom of the breach, formed by an adjacent fold of the intestine, being covered by a layer of tough, organized lymph. This had given way at the upper extremity of the wound, producing a circular aperture, nearly as large as a five cent piece, through which upwards of eight ounces of thin, fluid, alvine matter had escaped into the peritoneal cavity, where it induced fatal inflammation. The lymph which connected the convolutions of the bowel was firm, dense, and partially transformed into serous texture. The dog was in good condition, and considered out of danger until the occurrence of the accident which carried him off.

EXPERIMENT III.—Longitudinal wound one inch and a half long—four sutures—recovery.

From a full-grown tarrier a fold of the small bowel was

drawn, and an incision, an inch and a half long, made upon its convex surface, directly opposite the mesentery. The edges of the wound were brought together by four sutures, which had the effect of preventing any protrusion of the villous membrane. The dog suffered apparently no inconvenience from the operation, taking food and drink as before. A month after, the cure being considered as fully established, he was set at liberty.

EXPERIMENT IV.—Longitudinal wound half an inch long—two sutures—the animal killed on the seventeenth day.

A small pup, not more than about four months old, formed the subject of this experiment. The wound, only six lines long, was made along the convex surface of the intestine, as in the preceding experiment, and closed by two sutures. The animal was a good deal indisposed for the first forty-eight hours, but he gradually recovered his health and appetite, and lived until the seventeenth day, when I had him killed. The external opening was perfectly healed with the intervention of a narrow strip of omentum. The small intestines were slightly adherent to each other, and the internal wound was beautifully cicatrized. Both sutures had disappeared, and the villous portion of the breach was perfectly repaired. No contraction of the injured part was discoverable.

EXPERIMENT V.—Longitudinal wound three-quarters of an inch in length—three sutures—the animal killed at the end of the tenth day.

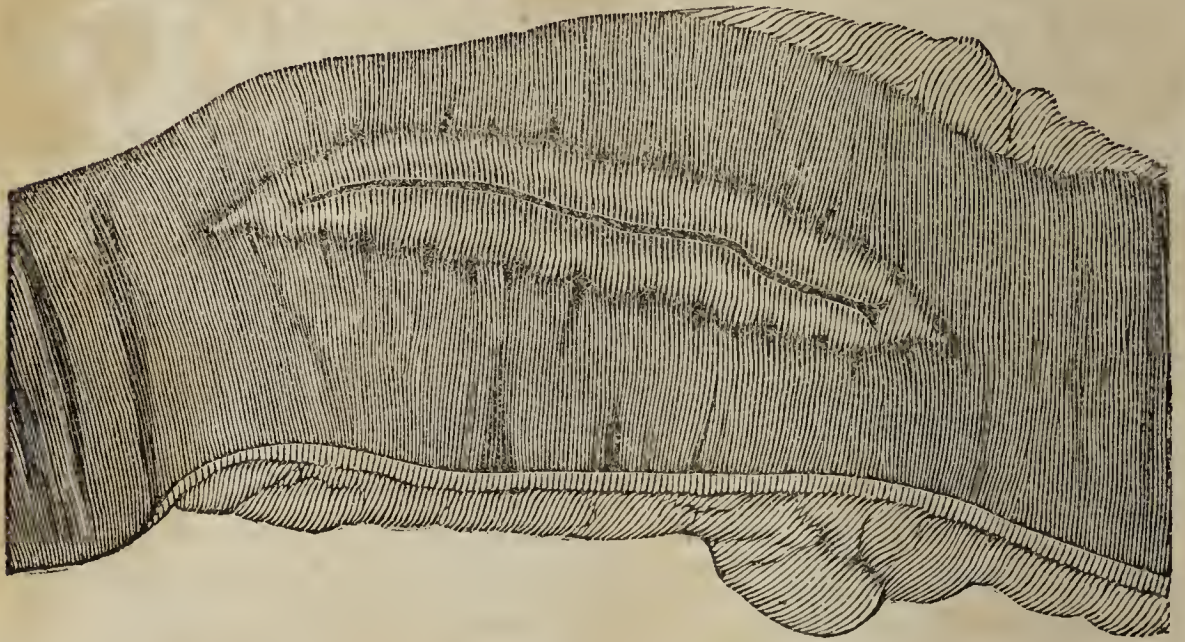
The subject of this experiment was a small dog, probably two or three years of age, into the ileum of which, about its middle, I made a longitudinal wound three-fourths of an inch in extent, and brought the edges together by three sutures at equal intervals. The animal bore the operation well, and soon recovered his wonted energy and spirits. He was killed at the end of the tenth day, the cure being considered as established.

The abdominal wound was nearly healed, with a process of epiploon interposed between its inner lips. A small fold of this apron-like membrane was also united to the outer surface of the intestinal wound, and the affected bowel had contracted pretty extensive adhesions to several of the adjacent convolutions. On laying open the tube the villous edges were found to be in close contact with each other, with only a partial re-establishment, however, of their continuity. The sutures still retained their hold, and were buried, as it were, in the substance of the mucous membrane. The latter was perfectly healthy both above and below the seat of the lesion, and the canal itself was in no respect diminished.

EXPERIMENT VI.—Longitudinal wound two inches and a half in length—eight sutures—the animal killed at the end of the seventeenth day.

From a very large and healthy dog, shortly after he had eaten a hearty meal, I removed a fold of the upper portion of the jejunum, and made a longitudinal incision, two inches in extent, along its convex surface, directly opposite the mesentery. The edges of the wound were approximated with eight sutures, equidistant from each other. The animal was exceedingly restive during the operation, which was in consequence somewhat protracted, and he lost several ounces of blood. For the first few hours he appeared languid and exhausted, but he rapidly recovered, and was killed at the end of the seventeenth day, being at the time in good condition. The outer wound was perfectly healed with a plug of epiploon between its inner edges. The bowels were free from adhesions, except at the seat of the injury, the surface of which was covered by a small slip of omentum. The caliber of the tube was of the normal size, and the reparation complete. The villous margins of the wound were, however, a good deal more elevated than common; but it was evident that they were every where continuous with each other. The marks of the sutures were still visible. The wound had diminished in length about half an inch.

The mucous coat was perfectly sound, and unpuckered. The arrangement of the parts is tolerably well seen in the drawing.



ing. The dark line in the centre represents the ridge formed by the junction of the lips of the wound, which, as has just been stated, were firmly united through their entire extent.

EXPERIMENT VII.—Longitudinal wound of the ileum three inches in length—twelve sutures—recovery—the animal killed at the end of the twentieth day.

The subject of this experiment was an old dog, of moderate size, which had fasted for twenty-four hours. The wound was three inches in length, and occupied the lower surface of the small gut, two feet from the ileo-cæcal valve. The sides of the solution of continuity were approximated by means of twelve sutures, placed equidistant from each other. The operation was tedious, and the dog was considerably exhausted before he was removed from the table. During the afternoon he was indisposed to move about, but the next morning the re-action seemed to be completely established, and from this time he rapidly convalesced. He was permitted to live until the expiration of the twentieth day.

On dissection the following appearances were observed. The abdominal wound was entirely cicatrized, and a thick

plug of the epiploon intervened between its inner margins. The injured bowel was firmly united to a process of the mesentery, to the omentum, and to the neighboring knuckles, by smooth and organized bands of lymph, strongly resembling the serous tissue. The peritoneal lips of the wound were scarcely discoverable; and as to the villous, they were not only in close contact but inseparably blended together. In fact, the restoration could not have been more perfect. The cicatrice, raised in the form of a narrow ridge, was not more than two inches and a quarter in length, the mucous membrane was no where puckered or diseased, and the tube retained its natural volume. All the sutures had disappeared, though the marks of some of them were still visible, and the villous edges were somewhat elevated, owing to interstitial deposits of plastic lymph. The animal was in good condition, having suffered little or no emaciation from his confinement.

EXPERIMENT VIII.—Two wounds, one longitudinal and the other transverse, the first one inch long, the second three-quarters of an inch—each opening closed with three sutures—recovery—the animal killed at the end of twenty-eight days.

Into the ileum of a small and very old dog I made two incisions, about eighteen inches from the ileo-cæcal valve. One of the wounds was longitudinal, twelve lines in extent, and situated upon the convex surface of the gut, five inches from the other, which was horizontal, and three lines shorter. Each opening was closed by means of three sutures, equidistant from each other. The dog had fasted for twelve or fifteen hours before the operation, from which he seemed to suffer severely. Notwithstanding this, he rapidly regained his health, and remaining well and in good order, he was killed on the twenty-eighth day.

The outer wound was perfectly healed, without the intervention of the omentum. The bowels had contracted firm and extensive adhesions to each other, as well as to the apron-like lamella just mentioned, but the lymph by which they were produced was quite smooth, organized, and in process

of absorption. The sutures had disappeared from both wounds, even to the most minute trace, and the edges of the latter, both serous and villous, were continuous with each other through the whole of their extent and beautifully united. The longitudinal breach was somewhat diminished in length, but the other retained its original size. In both, the cicatrice presented a smooth, rounded, and slightly elevated appearance. The mucous membrane was free from puckers, and the diameter of the tube natural.

EXPERIMENT IX.—Two wounds, each an inch in length—one opening closed with Lembert's, the other with the continued suture—recovery.

In the month of January last, in presence of the medical class, I removed a portion of the small intestine from the abdomen of a small fat dog, eighteen hours after he had taken food, and made two incisions along the convex surface of the tube each fully an inch in length. The lips of one of the wounds were approximated by three points of Lembert's, those of the other by the glover's suture; the contact in each being very close and intimate, so as to prevent the possibility of fæcal effusion. Having cleared away the coagulated blood, the parts were returned into the abdomen, and the edges of the outer wound retained by several points of the interrupted suture. The animal was kept on light diet for the first three or four days, with milk and water for his drink. No untoward symptoms occurring, and the cure being considered as fully established, he was set at liberty on the fifteenth day.

c.—Oblique Wounds.

EXPERIMENT I.—Oblique wound of the small bowel one inch and a half long—five sutures—the animal killed at the end of the twelfth day.

The subject of this experiment, a moderate-sized slut, apparently several years old, had fasted for twenty-four hours. The incision was two feet from the ileo-cæcal valve, and extended obliquely across the gut from one side of the mesen-

tery to within a few lines of the other for one inch and a half. Five sutures, equidistant from each other, were introduced, which had the effect, when tied, of accurately closing the opening in its entire length. No untoward symptoms supervened upon the operation, and the animal was killed at the end of the twelfth day, in good health and condition.

The outer wound was perfectly healed with a portion of omentum prolonged into it. The bowels were entirely free from adhesions, except at the seat of the lesion, which was covered with a small mass of adherent epiploon of a red color. The affected part of the tube was of the natural width, and contained a small quantity of mucous and fæculent fluid. The villous edges were not only in contact with each other but firmly consolidated, their continuity being thoroughly re-established, except at the upper extremity of the breach, where there was a depression about half a line in diameter.

EXPERIMENT II.—Oblique wound of the small bowel one inch and three-quarters long—six sutures—the animal killed at the end of the twelfth day.

This experiment was merely a repetition of the preceding. The animal, a small young slut, had fasted for twenty-four hours, and the wound, which was one inch and three-quarters long, extended obliquely from one side of the mesentery to the other. Six sutures were employed at equal intervals. In making the outer opening the bladder was accidentally punctured, followed by a free escape of urine, but no unpleasant symptoms afterwards. At the end of the twelfth day, the animal, being in good health, was killed.

The outer wound had healed through the intervention of a piece of the omentum, as in the preceding experiment. There was no adhesion of the intestines to each other, to the wall of the abdomen, to the other viscera, or to the epiploon, except at the seat of the injury. Two sutures remained in the wound, one being loose, the other slightly attached. The villous edges were separated from each other, without any apparent effort at re-union. The bowel, which retained its natural width, formed a sort of cul-de-sac just above

and below the wound, seemingly from the vicious attachment of the omentum. The villous membrane was healthy, and covered with thick, viscid mucus. All the other viscera were sound. The wound in the bladder was beautifully cicatrized.

EXPERIMENT III.—Oblique wound one inch long—four sutures—the animal killed at the end of the twenty-second day.

The animal which formed the subject of this experiment was very small and not more than nine or ten months old: he had fasted for twenty-four hours. The wound, one inch long, was situated one foot from the ileo-cæcal valve, and closed with four sutures. Speedy recovery ensued, or, rather the animal did not seem to be affected by the injury, and he was permitted to live till the end of the twenty-second day. The appearances revealed by the examination so nearly resembled those in the last two experiments that it is scarcely necessary to specify them. The outer opening had, as usual, a process of omentum in it, and a small process was also attached to the intestinal wound, which was beautifully cicatrized, the continuity of the villous surfaces being completely re-established. It had diminished about one-fourth in length. The diameter of the tube, however, was natural. The dog was in good order.

EXPERIMENT IV.—Oblique wound of the ileum two inches long—six sutures—recovery—the animal killed at the end of the thirteenth day.

The dog was old and of middle size, and made much resistance during the operation, which was consequently somewhat tedious. The experiment was witnessed by Dr. Dodson, Dr. Richard Ferguson, and several other medical friends. The incision, extending obliquely from one side of the mesentery to the other, was two inches in length, and closed by six points of suture equidistant from each other. The dog soon recovered from the effects of the operation, and was allowed to live until the expiration of the thirteenth day.

The outer wound presented nothing unusual. It was pretty firmly cicatrized, with a process of omentum projecting between its inner lips. The injured bowel, intimately connected to several neighboring coils by plastic lymph, was distended with semi-fluid fæcal matter. All the sutures, except two, had escaped; the villous edges of the wound were beautifully united throughout their entire extent, and had an elevated, tumified appearance; there was no puckering of the mucous membrane, and the cicatrice was less distinctly marked than in some of the other cases. The tube retained its natural dimensions. It should have been stated that the wound had diminished in length fully half an inch.

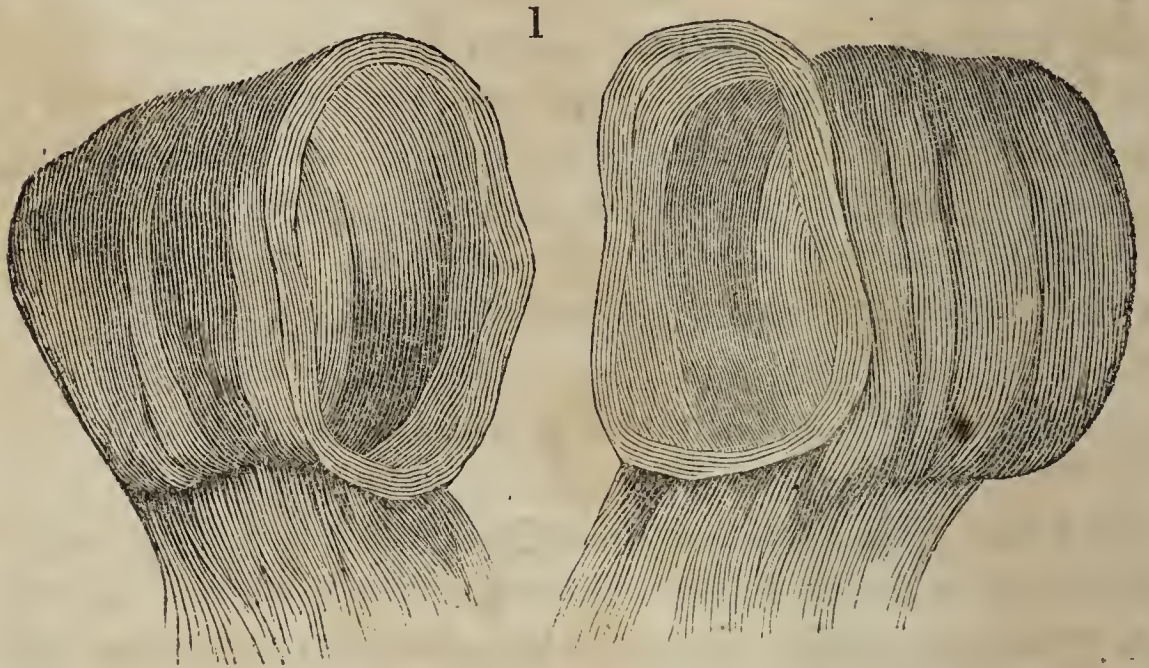
10.—*Method of Denans.*

In 1826, Mons. Denans, a surgeon of Marseilles, proposed the employment of three hollow metallic cylinders, in the belief that the serous surfaces of the divided ends of the gut could thereby be kept more effectually in contact than by any other proceeding.* One cylinder is placed into each extremity of the tube, which is then invaginated; the other cylinder, namely, the third, a little narrower than the rest, is next introduced, first into the upper and then into the lower, so as to confine and compress the inverted edges, and serve as a sort of rod for their support. Two of the cylinders are each three lines long, and the other or intermediate one six lines; and each end of the gut is inverted about two lines. To fasten these cylinders Denans employs several points of suture, which embrace the lips of the wound and assist in maintaining them in accurate apposition. When the operation is completed the ends of the threads are cut off close to the peritoneal surface, and the parts returned into the abdomen. The agglutination of the approximated structures is soon effected, and the inverted extremities of the bowel, deprived of their vitality by the pressure of the apparatus, rap-

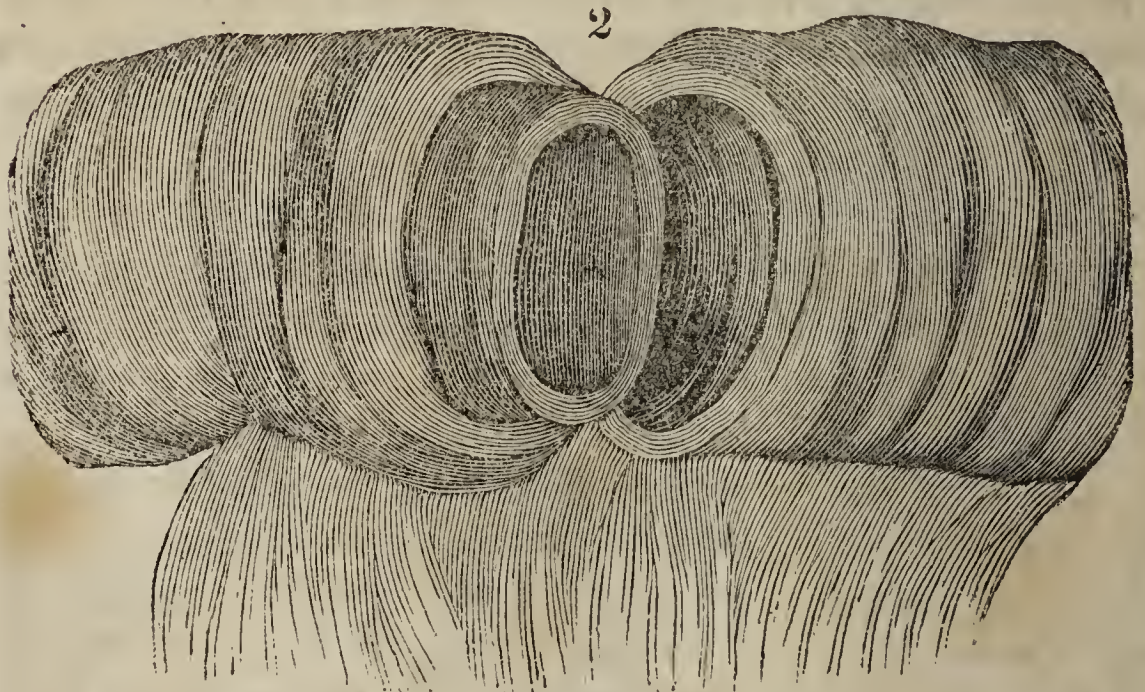
* Recueil de la Société de Médecine de Marseille, No. 1. 1826.

idly slough off. The metallic ferules, thus set free, are discharged along with the fæces.

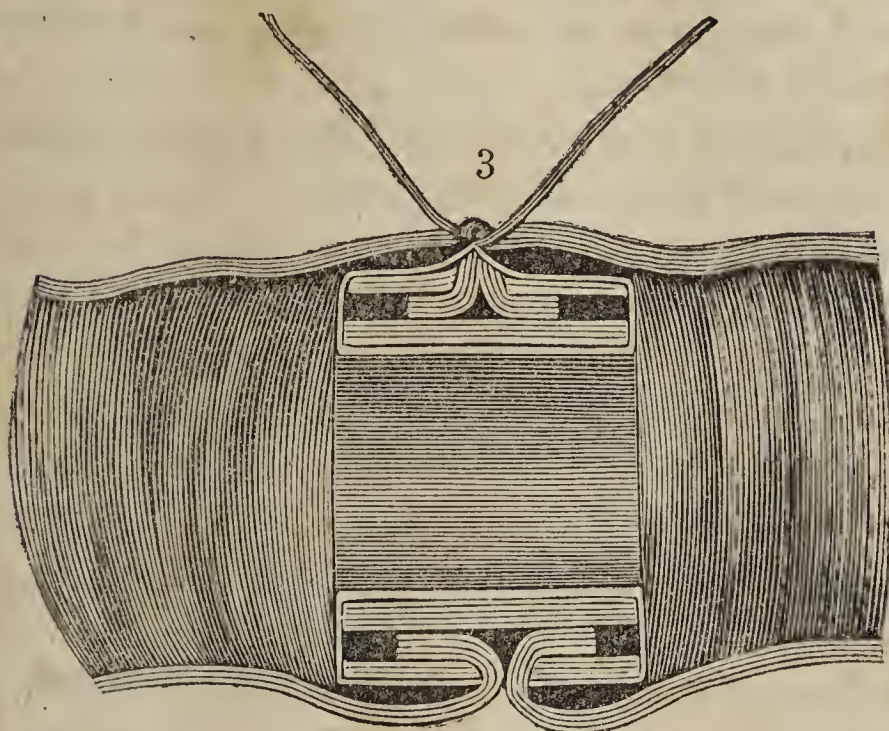
The accompanying engravings will more fully explain the nature of Denans' apparatus and the manner of securing it in the intestinal tube. Figure 1 shows the approximation



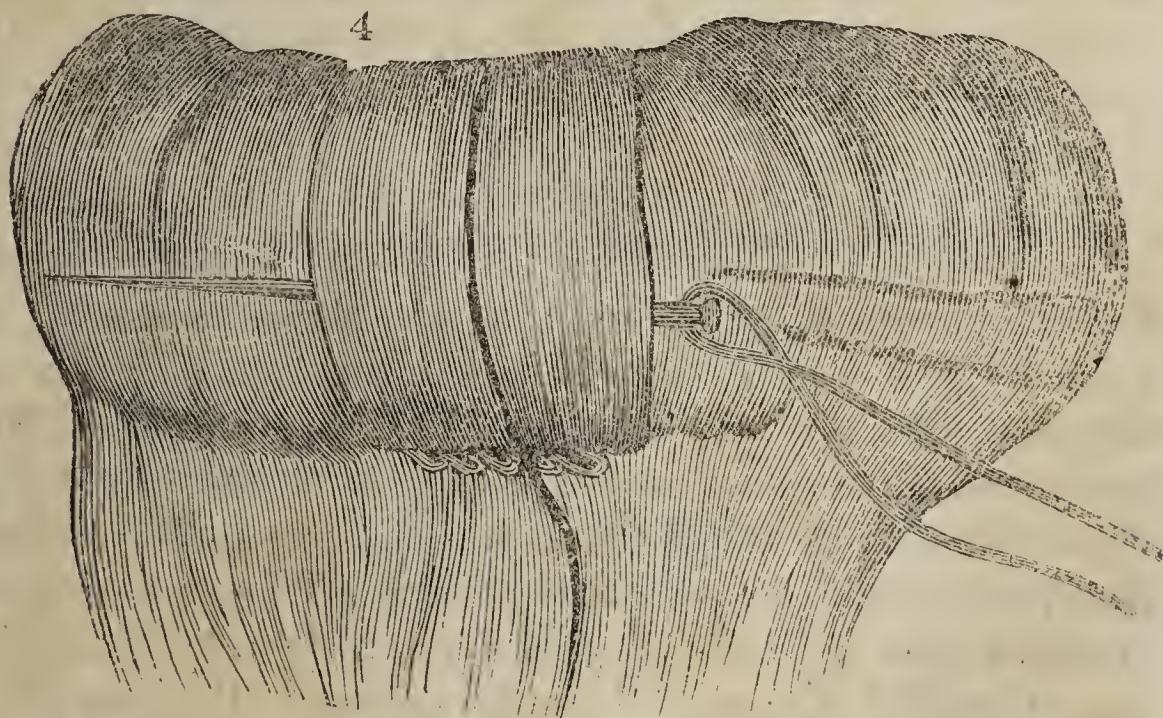
of the two ends of the bowel, with the small cylinders in their interior; figure 2, the situation of the middle or long



ferule; figure 3, a vertical section of the bowel, and the pas-



sage of one of the ligatures, to maintain the apposition of the serous surfaces; figure 4, the appearance of the parts after



they have been brought together, and the manner of introducing the suture in this stage of the operation.

It is said that this mode of treatment furnished only one successful case in four. In a memoir presented to the Royal Academy of Medicine of Paris, Denans states that in the first experiment the ferules did not pass out of the bowels until seventeen days after the operation. In the second case he

wrapped up a small bone in a piece of bread, which was given to the dog, and the instruments were voided at the end of eight days.*

Denans, having recently simplified the above method, now restricts himself exclusively to the three ferules, which are so closely fitted into each other as to obviate the necessity of the suture. The new process is thus described by Dr. Charles Phillips of Liege.† There is, first, a circular row of springs similar to those used as clasps for ladies bracelets. Secondly, the outer ferules are of a conical form, the base of each having a border a line in extent, which, although covered by the reflected intestine, still holds the springs of the inner ring which pass beyond it. By this arrangement the practitioner escapes the difficulty experienced in using the suture. When the first spring is once adjusted, it is only necessary to reflect as much of the bowel as is considered requisite; an advantage which prevents the tumefaction of the edges of the wound and the formation of a fold at the inside of the ferules, which, it is alledged, was the constant cause of the want of success of the original method.

Without having apparently any knowledge of the process of Denans, above described, a very similar practice was proposed, a few years ago, by Mons. Baudens, of France. His account of it is to be found in his work on Gun-shot Wounds, published in 1836. It is certainly less complicated than that of his countryman, but whether it will ultimately be found to possess any decided advantages over it is a circumstance which it is impossible to predict. Baudens uses only one metallic ferule with a ring of gum-elastic, instead of three, as is in the process of Denans. The ferule, moreover, differs from that of Denans in being concave on the back, where it is formed into a groove to adapt it to the gum-elastic ring which embraces it like a clasp. The following is the manner in which the apparatus is applied.

* London Lancet for 1834-'5, p. 202.

† Ibid.

The elastic ring is introduced a quarter of an inch within the upper end, the lips of which are immediately inverted, and consequently folded over the instrument, which thus lies in the angle formed by the gut. The ferule is next engaged in the lower end, to the extent of two lines, when the ring is drawn down over it, and the bowel is ready to be reduced into its natural situation. Baudens states that he has employed this method successfully on dogs, and that he would not hesitate, if occasion offered, to resort to it in the human subject.

A distinguished writer in the *Dictionnaire de Médecine et de Chirurgie Pratiques*, Mons. L. J. Sanson, in summing up the advantages of the different methods of treatment of wounds of the intestinal canal, gives a decided preference to that of Denans. He seems to think that it will insure more perfect apposition of the divided ends, and that it is better calculated also to prevent contraction of the affected bowel, so apt to follow, as he supposes, some of the other procedures. He does not, however, support his arguments by any experiments or observations, and they should therefore be received for what they are worth—merely as so many closet speculations. Mr. Lawrence,* in speaking of this method, very justly remarks that “a patient who could survive the infliction of such surgery must be endowed with great tenacity of life.”

II.—*Method of Reybard.*

The next method that claims our attention is that of Mons. Reybard, of Paris, an account of which was published in 1837, in his “*Memoir on Artificial Anus.*”† The object of it, as set forth by the author, is to effect a temporary obliteration of the wound and to maintain the bowel in strict relation with the wall of the abdomen. For this purpose a ligature, armed with two sewing needles, is passed through a light wooden cylinder, perfectly smooth on its ex-

* Treatise on Ruptures, p. 356.

† See Vidal, *Traite de Pathologie Externe*, T. 4, p. 503.—Velpeau, *Medicine Operatoire*, T. 4, p. 135.

terior, and from fifteen to sixteen lines in length by eight or nine in diameter. Thus arranged, and having previously, like Ramdohr, detached a small piece of the mesentery along the concave surface of the tube, the cylinder is introduced into the intestines, where it is fastened by carrying the needles from within outwards through the lips of the wound, about a quarter of an inch from its margin. The extremities of the ligature, crossed and twisted together, are passed, by means of a crooked needle, through the abdominal muscles, at a short distance from the edge of the outer opening. The double thread is now held by an assistant until the surgeon has reduced the bowel; when, taking it in his left hand, he pulls it, and satisfies himself that the injured part is in exact apposition with the abdominal parietes. The operation is completed by separating the ligatures, and tying them over a small compress lying parallel with the inner lip of the wound. In an experiment performed after this method the sutures were cut away at the end of forty-eight hours, and the following morning the wooden cylinder was expelled along with the fæces.*

The nature of this operation will be more fully understood by a reference to the engravings. Figure 1 represents the wooden cylinder.

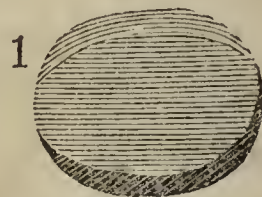
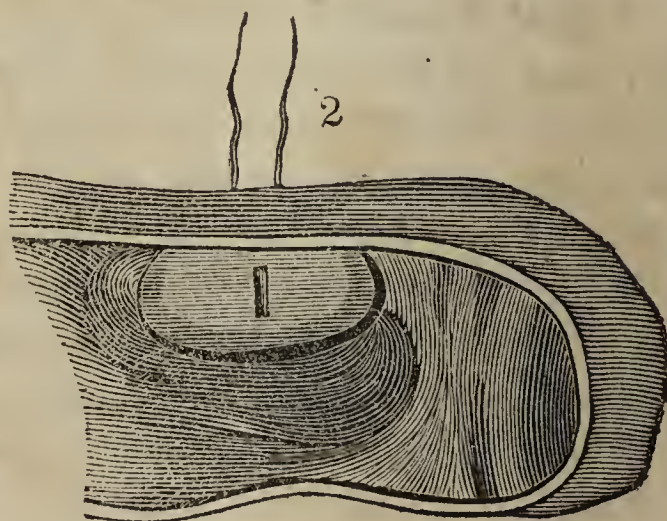
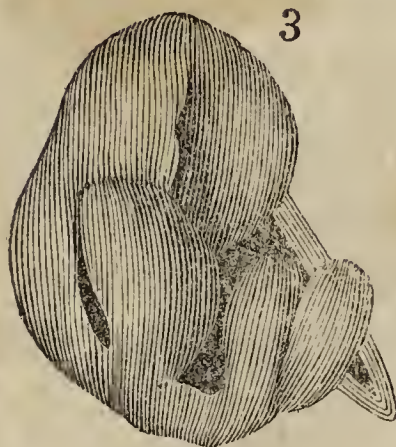


Figure 2 is a longitudinal section of the bowel with the cylinder fastened by the ligature.



* Vidal, op. cit. T. 4, p. 503.

Fig. 3 shows the appearance of the parts ready to be returned into the abdominal cavity.



Not having repeated the experiment of Reybard, I cannot speak of it from personal observation. It appears to me, however, to be entirely too complicated, to say nothing of the danger which must necessarily arise from the presence of a foreign body, such as he suggests, and which, it may be supposed, might easily be retained in the alimentary canal, causing severe, if not fatal, inflammation, ulcerative absorption, or insurmountable obstruction to the passage of the fæces. It has, moreover, I believe, never been employed in the human subject, and it is obviously nothing but a modification of the process of Duverger, Sabatier, and other surgeons, who recommend the use of a piece of trachea, or other hollow body. Such a proceeding is entirely too mechanical, and would have been better suited to the dark ages than it is to the nineteenth century.

12.—*Method of Amussat, Thomson, Choisy and Beclard.*

As if there were no end to the devices of surgeons for the cure of wounds of the intestines, Professor Amussat, of Paris, has recently proposed another, apparently highly ingenious, which deserves to be mentioned here more on account of its novelty than from any probability that it will ever be employed in the human subject. Like that of Lembert, Denans and Jobert, its object is to place the two serous surfaces in contact with each other, to facilitate the adhesive process, and prevent the effusion of stercoraceous matter. The idea originally suggested itself

to Amussat from observing, on repeating the celebrated experiment of Mr. Travers of encircling the bowel with a ligature, with what rapidity the continuity of the tube is re-established at the seat of the constriction, and how little the operation interferes with the comfort of the animal, or the transmission of the fæces. The apparatus which he was led to employ in the first instance was simply a piece of elder-tube, half an inch long, with a narrow central groove, and a diameter somewhat less than that of the intestine. This being introduced into the divided ends of the gut, with the precaution of making the lower overlap the other, as in the operation of Chopart and Desault, a ligature was applied around the parts corresponding with the groove, and drawn with sufficient tightness to cause their strangulation. The result, however, was unsuccessful. The adhesions, from the imperfect approximation of the serous surfaces, failed to acquire the proper degree of solidity, and hence, when the constricted parts were detached, the edges of the wound separated from each other, and the animal promptly perished from the effects of fæcal effusion.

To obviate this accident, Amussat applied to each end of the elder-tube a small conical ferule, which he fastened by means of a small strip of adhesive plaster, the base of the one being turned towards that of the other. By this arrangement he obtained a deep groove, instead of a superficial depression, as in the other contrivance. Two ligatures, six inches long, each passed through a straight needle, and placed opposite each other on the edge at the truncated top of one of the ferules, complete the apparatus by which the strangulation is effected. Thus arranged, the operator introduces the elder-tube into one of the ends of the bowel, where it is secured by passing the needles from within outward through its tunics. The other extremity, held open with several forceps, is then transfixes with both needles together in the same direction, an inch from the lip of the wound, when by means of the two threads the intestine is gradually drawn over the remainder of the foreign body, or, rather, high enough to overlap

the other portion to the extent of a few lines. A waxed cord is now applied around the central groove of the apparatus, and drawn with sufficient firmness to strangulate the parts which it embraces. Any redundant substance beyond the cord is to be removed with the scissors, otherwise it will interfere with the union of the serous surfaces, the grand object of the operation. In a few days the constricted parts slough, and the apparatus, being thus set free, is expelled along with the fæces.

Dr. Charles Phillips, to whom I am mainly indebted for this account of the above method, states that it will prove successful in four cases out of five, when performed with proper precaution. I have not deemed it necessary to repeat it on any of the inferior animals, from a conviction that it is obnoxious to the same objections as the process of Denans, without any compensating advantages. Like the operation of Ramdohr, of which, after all, it is merely a modification, it requires a previous separation of the mesentery, to facilitate the invagination of the upper into the lower end; to say nothing of the complicated nature of the apparatus, which cannot always be obtained on the spur of the moment, and which few practitioners will keep on hand in expectation of such an occurrence.

Soon after the above method was made public, Dr. Alexander Thomson, of Paris, suggested certain modifications in the construction of the apparatus, which, however, have only been employed, I believe, on the dead subject. It is impossible, therefore, to say how they might answer in the living. The tube, as improved by Thomson, consists of two pieces, instead of one, which are joined together by an ebony ring, a third of an inch long. The base of each tube is hollow, and marked by a groove two lines in depth by one and a half in width. When united, they present a ridge of two or three lines. "The moveable cone is pierced with two holes at its border for allowing the introduction of two ligatures. Two other waxed threads pass through the substance of the tube, upon which the other cone is fixed. The end of the groove

formed by the union of the two cones is made somewhat rough, for the purpose of keeping a more firm hold upon the intestine. The moveable cone is fixed upon a handle, which extends about three quarters of an inch beyond its truncated extremity. At the middle of the handle is a small permanent stud, for the purpose of holding the ligatures which are coiled around it. The extremity of the handle serves to open a free passage into the intestine, until it has reached two-thirds of an inch beyond the base of the cone fixed upon the said handle. Close to the stud are two steel arms, furnished with hooks and springs for securing the intestine. A ligature is then placed over the groove in the base of the cone, and tightened so as to produce strangulation of the intestine, the operator cutting off a portion of the extremity beyond the constricted part. The two ligatures are then loosened, by which the cone is set at liberty, a needle is put on each, and they are passed through the strangulated portion of intestine. The same method having been adopted with respect to the other end of the intestine, the two cones are then united in such a way that the ligatures applied for fixing them may be in immediate contact. They are tied, and cut off near the knots, and the intestine is returned into the abdomen.”*

Another modification of Amussat's method was proposed by Mons. Choisy, in a thesis which he presented to the Faculty of Paris, in 1837, for the degree of doctor of medicine. It consists simply in invaginating the divided bowel, and tying it over a piece of trachea. In performing the operation the foreign body is introduced into the superior extremity, where it is fastened by the glover's suture, after which the thread is carried from within outwards across the inferior end, the latter being thus made to cover a portion of the former. The ligature is then applied around the parts, as in Amussat's process, and drawn sufficiently tight to effect their strangulation.† Choisy has performed this operation several times

* London Lancet for 1835, p. 204.

† Velpeau, *Medecine Operatoire*, T. iv, p. 139.

successfully upon dogs, but whether it has been repeated by other surgeons I have not been able to learn.

Beclard, author of the "Elements of General Anatomy," suggested, many years ago, a mode of treating wounds of the intestinal canal, which, from the success that attended it in some of the inferior animals, he thought might be advantageously applied to the human subject.* It is certainly much more simple than that of Amussat, or the modifications of it by Thomson and Choisy, and if I could be induced to employ any process of the kind, I should unhesitatingly give it the preference. The method under consideration consists in introducing one end within the other, without the intervention of any foreign body, and in encircling them with a ligature drawn with moderate firmness. The serous surfaces are thus brought into close apposition with each other, and the cord, cutting its way through the coats of the intestine, falls in a few days into the tube, where it is discharged along with the fæces.

Such is an accurate and impartial account of the various and diversified methods of treatment of wounds of the intestinal canal. Of the estimate to be placed upon them, I have already expressed my opinion, excepting in a few instances, where the facts I have presented are competent to speak for themselves. My conviction is that there are but two sutures which should ever be thought of in the management of this class of injuries, namely, the continued and the interrupted, with the modification of the latter proposed by Lembert. The manner of executing them has been already explained, and it is not necessary, therefore, to say any thing further on the subject in this place.

Whichever of these sutures be employed, the operator should

* Chélius, *Traité de Chirurgie*, T. i, p. 176. Paris, 1835.

never lose sight of the important principle of closing the opening in the bowel in such a manner as to prevent the escape of fæcal matter. By guarding against this occurrence, the patient will run comparatively little risk of perishing from peritoneal inflammation. When the wound is transverse, and involves the whole cylinder of the tube, I should prefer the continued or common interrupted suture to the method of Lembert, especially in young subjects, in whom the canal is very narrow, or in persons in whom the bowel is over-loaded with fæcal matter at the moment of the injury. In a case of this kind the inverted edges might occasion serious obstruction, from the manner in which they project into the interior of the canal. To longitudinal and oblique wounds, particularly the former, the expedient of Lembert is admirably adapted. The operation is very simple, the sutures easily retain their hold, and the divided edges are more speedily re-united than by any other method.

In reflecting upon the results of the experiments which have been offered in illustration of the use of the above sutures, it should not be forgotten that an operation which is perfectly successful upon an inferior animal, may, when performed upon the human subject, be followed by the worst consequences. In the one, disease is exceedingly rare; in the other, it is not only frequent, but capable of assuming a vast variety of forms, and of sapping the foundations of life when least expected. In the one, peritoneal inflammation is not only uncommon, but, when developed, seldom attains any considerable height; in the other, it is not only easily excited, but extremely apt to terminate fatally. Aware of these facts, the surgeon should always scrupulously guard against the infliction of unnecessary injury; the stitching should be done as gently as possible; and all rough manipulation should be carefully avoided. After the parts have been reduced the external wound should be closed by several points of suture, and every effort made to avert peritoneal inflammation, the great source of danger in injuries of this kind.

It has been alleged that longitudinal do not unite with the

same facility as transverse wounds. "There is a curious difference," observes Sir A. Cooper,* "in the facility with which a longitudinal and a transverse wound of the intestine unite. It has been already shown that the transverse heal readily, but with respect to the longitudinal, they have a contrary tendency." In illustration of this assertion, he cites two experiments by Dr. Thomson, of Edinburgh, in which death occurred from the extravasation of fæcal matter, in less than forty-eight hours. The wound in each was an inch and a half long, and closed by four interrupted sutures, with the precaution, in one, of sewing up the intestine with a fine thread. In an experiment performed by himself, in which the incision was of the same length as in the preceding cases, and in which he had recourse to the continued suture, the animal recovered.

My own experience by no means coincides with that of the great English surgeon. We have already seen that, in the twenty-seven experiments above detailed, there were only two deaths, notwithstanding the great extent of the wound in some of them. I have no reason to believe, as Sir A. Cooper apprehends, that the sewing up of a longitudinal wound produces a greater degree of constitutional irritation than that of a transverse one; at all events, I have never witnessed any result of the kind. The experiments which he adduces from Dr. Thomson in support of his opinion were evidently not executed with the requisite precaution. A wound an inch and a half long cannot, as a general principle, be returned with safety into the abdomen with only four interrupted sutures; fæcal effusion would be almost inevitable, especially if the canal happened at the time to be loaded with ingesta, or if the animal were permitted to take much drink or food after the operation. In the second experiment the dog died, not because the parts had not been duly approximated in the first instance, but because the sutures, interrupted as well continued, had lost their hold, and

* *Anatomy and Surgical Treatment of Hernia*, p. 51.

thus allowed the wound to gap, and the fæces to escape into the peritoneal sac. In the experiment performed by Sir A. Cooper himself, in which the edges of the solution of continuity were secured by the uninterrupted suture, no effusion could occur, and the consequence was that the animal quickly recovered.

The conclusion, therefore, which I would draw from my researches is, that longitudinal wounds, instead of uniting less easily than transverse, generally adhere with more facility, that they do not produce a greater degree of constitutional irritation, or local disturbance, and that they are not more liable, if as much so, to be followed by contraction of the caliber of the tube at the seat of the injury. The same remarks I consider as applicable to oblique wounds. In nine cases of this kind, treated by the continued and interrupted suture, or by the method of Lembert, there was not a single death, any unusual symptom, or any diminution of the affected cylinder.

VI.—*Partial and Complete Division of the Intestines.*

In operating for sphacelated hernia it occasionally happens that the constricted bowel contains a small aperture, caused either by the strangulation, or by the efforts which the surgeon is obliged to make to effect the reduction. The gut may also be accidentally wounded by the knife in attempting to divide the stricture, by neglecting to draw down the sac, and holding up the abdominal muscles. A number of examples of this kind are mentioned by authors. One is recorded by Mr. Lawrence in his Treatise on Ruptures, and another, which occurred in the practice of Cloquet, is cited in a previous part of this inquiry. When this accident happens, and the aperture is small, Sir Astley Cooper advises a treatment somewhat different from that which is proper when the tube is mortified in its entire circumference. Instead of excising the affected parts, and bringing the edges together by means of the suture, the sur-

geon should pinch up the margins of the opening with a pair of forceps, and then include them in a fine silk ligature, drawn sufficiently tight to divide the mucous membrane. The bowel should afterwards be returned to the mouth of the sac, and the case managed upon general principles. The preternatural orifice must not be more than three or four lines in diameter, otherwise it will not only be difficult to prevent the ligature from losing its hold, but the operation will be likely to be followed by undue and injurious contraction of the gut.

The following experiments and cases will exhibit this operation in a more forcible point of view. Of the latter, two occurred in the hands of Mr. Lawrence, the other in those of Sir Astley Cooper, with whom I believe the practice originated, and to whom surgery is indebted for some of its most ingenious and substantial improvements.

EXPERIMENT I.—Having opened the abdomen of a small slut, and exposed a fold of the ileum, I made an incision, half an inch in length, along its convex surface, and secured it by means of a strong silk ligature tied firmly round its sides. Some difficulty was experienced in preventing the thread from slipping; it was drawn with considerable firmness, and when the ends were cut off it was found to be nearly concealed from view by the apposition of the serous surfaces. The bowel was then returned, and the outer wound closed in the usual manner. The animal did not appear to mind the operation, which was soon over, and she was permitted to live until the ninth day. It is unnecessary to mention all the particulars of the post-mortem examination. Suffice it to say that the small intestines were slightly agglutinated to each other and to the omentum, and that the latter projected into and assisted in closing the outer wound. The bowel at the seat of the injury was remarkably firm, and presented numerous red points. The ligature had disappeared, and the edges of the wound were about three lines apart at their centre, without any contraction of the caliber of the tube. The bottom of the wound was consequently formed

by a neighboring convolution protected only by a thin layer of lymph of a yellow-greenish appearance, from the admixture evidently of bilious matter.

EXPERIMENT II.—The incision in this experiment was transverse instead of longitudinal, but of the same extent as in the preceding. It was situated in the small bowel, about two feet from the ileo-cæcal valve, and the difficulty experienced in encircling it was still greater than in the former case. One end of the ligature being cut off near the peritoneal surface, the other was brought out at the external wound, which was closed in the usual way. The animal, a small pup, soon recovered from the shock of the operation, and was killed twenty-three days after, the ligature having been detached towards the end of the first week. The outer wound was completely cicatrized, with a process of omentum adherent round its margins, as well as to the convolutions of the small intestines. The latter were strongly united to each other at several points, particularly at the seat of the injury, which was almost perfectly repaired, the mucous membrane being deficient over a space not exceeding the diameter of a split pea. The bowel retained its normal dimensions, and the animal was in good condition at the time he was killed.

CASE I.*—John Shall, sixty years of age, was admitted into St. Bartholomew's Hospital, on the 2d of November, 1826, with strangulated inguinal hernia. The tumor was hard and painful, the abdomen was tender on pressure, and there was a sense of tightness across the navel, with constant nausea and occasional vomiting. The pulse was small and frequent, and the symptoms in all respects urgent. All attempts to replace the parts by the taxis having failed, Mr. Lawrence proceeded to operate eight hours after the bowel had come down. The swelling contained a portion of small intestine in front with a large mass of omentum behind, and the stricture was caused by the neck of the sac, which encircled the protruded tube like a tight cord. On withdrawing

* Lawrence's *Treatise on Ruptures*, p. 301-3.

the intestine gently, an opening was discovered in it just above the part that had been compressed, and which had probably been made by the bistoury in dividing the stricture. The sides of this aperture, which was very small, being held with the dissecting forceps, a ligature was firmly tied around it, after which the ends were cut close to the knot. A piece of omentum, which had been long protruded, and which it was found difficult to return into the abdomen, was removed with the knife, and the divided vessels, six or eight in number, secured in the usual manner. The integuments were brought together by three or four sutures, assisted by strips of adhesive plaster. Soon after the operation the bowels were evacuated with senna, and blood was twice taken from the arm. On the 6th of November the sutures were removed from the outer wound, and on the 13th the ligatures came away from the omentum. It is needless to add that the patient rapidly recovered.

CASE II.—In another case, in which the bowel was wounded, Mr. Lawrence * pursued the same method. It was a large enterocele with the intestines greatly distended and the abdomen so very tense that it was difficult to replace the parts and prevent them from re-descending. The symptoms were not relieved by the operation, and death ensued within two days. The ligature was completely covered by a thin smooth layer of lymph, and so concealed that there was difficulty in finding it: the small wound in the bowel was closed.

CASE III.—Joseph Curtis, a butcher, twenty-one years of age, was brought into Guy's Hospital, on the 9th of December, 1808. He had a tumor in his left groin, which was very hard and tense, and gave considerable uneasiness on pressure. Along with this was violent pain in the stomach with vomiting of green bilious matter. Various attempts were made at reduction, but they all failed, and the opera-

* Op. cit.

tion was therefore at once determined upon by Mr., afterwards Sir Astley Cooper. About four inches of the small intestines were found in the sac, of a dark reddish color, with the testicle at the lower part. The stricture, situated at the mouth of the sac, was divided in the usual manner; a fluid of a yellowish appearance escaped, and on turning up the gut an opening was discovered, which was immediately laid hold of with a pair of forceps, and tied with a ligature. The parts were then returned, and the abdominal wound secured by five stitches assisted by adhesive strips. The patient bore the operation well, and seemed much better after it. For the first ten or twelve days, however, his sufferings were severe, but he gradually surmounted them, and was discharged cured on the 17th of January, 1809, a little more than three months after his admission.*

In commenting on this case, Sir Astley Cooper uses the following language: "We had the pleasure and satisfaction to see the patient completely recovered from an operation, the circumstances attending which were remarkable, and such as will tend to throw much light upon a subject hitherto but little understood."

The above plan, so happily employed by Sir Astley Cooper and Mr. Lawrence, has doubtless been adopted, if not actually executed, by numerous other surgeons. "Many years ago," says Prof. Gibson,† in speaking of Sir Astley Cooper's procedure, "I performed a similar operation in a case of hernia, and with equal success." Mr. Syme, of Edinburgh, recommends the same practice,‡ which may now, indeed, be considered as being fully sanctioned both by observations on the human subject and experiments on the lower animals.

Such is the treatment which should undoubtedly be pursued by the surgeon when he meets with an aperture of small

* *The Anatomy and Surgical Treatment of Abdominal Hernia*, Part i, p. 45. Second edition.

† *Institutes of Surgery*, vol. i, p. 119. Philadelphia, 1838.

‡ *Principles of Surgery*, p. 262. Second edition.

size in the strangulated bowel. When the gangrene, however, involves the entire cylinder of the tube, a different mode of management must be resorted to. Under these circumstances, the affected parts should either be excised, and the edges approximated by the suture; or they should be freely opened, and maintained in contact with the abdominal wound, to afford a ready outlet to the fæces. The experience of the profession has not yet fully determined, I think, which of these methods should be adopted to the exclusion of the other, or whether both are not occasionally justifiable. Several examples have already been cited in which excision was practised with the most complete success. The memorable case of Ramdohr is of this kind. An analogous one is recorded by Baudens, and mentioned under the head of Lembert's process of sewing up wounds of the intestines. The case which occurred in the hands of Dieffenbach is also in point. The sphacelated part was at least three inches in length; the whole of which was removed with the knife, and the divided extremities secured by suture. The man lived nearly a month after the operation, and would have completely recovered but for some imprudence in his diet. In another case four inches of mortified intestine were removed, and the patient, a young man, recovered.* Many examples of a similar description are on record, but it is not necessary to refer to them more particularly in this place.

The practice of excision derives support from what is occasionally witnessed in intus-susception of the intestines, in which large pieces of the tube are detached without any detriment to life. In my museum of morbid anatomy is a preparation of this kind, presented to me by my friend Dr. Dawson, of Ohio, in which a portion of the colon, twenty-nine inches long, was discharged by a child six years of age, who, notwithstanding, made a most rapid recovery. This patient, as I have been recently informed, is still living and

* Sir A. Cooper on Hernia, p. 37.

in perfect health, three years after the above occurrence. Thirty-five cases of a similar nature, collected from the writings of different pathologists, have been reported by Dr. Thompson of Europe.* The length of the eliminated pieces varied from six inches to upwards of three feet: they generally involved the whole cylinder of the bowel, and nearly all had a portion of mesentery attached to them. In one instance there was a mesenteric ganglion, in another a process of omentum. The average duration of the disease was between four and five weeks. In twenty-two of the cases the evacuated portion appertained to the small bowel, in the other to the large, or jointly to this and to the former. The cœcum was affected alone in one instance, the colon in two, the jejunum in three, the ileum in eleven.

The following case may be adduced as throwing additional light upon this interesting and important subject. It occurred in the practice of Dr. McKeever, of Dublin, and will be found recorded in the fourth volume of the *London Medico-Chirurgical Review*.

A young robust woman, after having been in labor for upwards of thirty hours, was delivered on the 29th day of July, with the crotchet, previously to which a rent had taken place high up in the posterior part of the vagina, which extended round the neck of bladder, and communicated freely with that viscus. On the following day, in the afternoon, one of the attendants observed a shining substance hanging from the external parts, which was found, on the fifth of August, when Dr. McKeever first visited her, to be nearly a yard and a half of her small bowel coiled up under her, black, apparently putrid, and full of openings. Her belly at this time was much swollen, and excessively painful; her stomach rejected even the mildest articles of diet; the bowels were still obstinately confined; the pulse was small, intermitting and tremulous; and her countenance

**Edinburgh Medical and Surgical Journal*, Oct. 1835.—See also the author's *Elements of Pathological Anatomy*, vol. ii., p. 260.

was pallid and ghastly: in short, she had every appearance of being in a moribund state. It being too late to return the parts, the treatment was merely palliative. On the following day, the protruded portion of the intestine had a soft doughy feel, was more shrivelled, and, instead of being black and livid, it was of a dirty ash-color. The constitutional phenomena were as before. On the seventh day the mortified parts, measuring precisely three feet and eleven inches, were detached, and the woman was nearly free from alarming and distressing symptoms. The vomiting and hiccough had ceased, her pulse was regular and of good strength, the countenance much improved, and the abdomen, though still much swelled, less tender to the touch. She had also a copious discharge of fæces by the vagina, being the first alvine evacuation she had since her delivery.

From this time she gradually mended. Her countenance improved, the secretion of milk became abundant, and the excrementitious matter was of a healthy color, smell and consistence. Three years after the occurrence of the accident, she could walk a dozen miles without inconvenience, and had become fat. For two years after her confinement she had no discharge whatever from the rectum, the residue of her food being altogether voided by the vagina. About the end of that period, however, she was attacked with violent bearing-down pains, accompanied by tenesmus, and after half an hour's severe suffering, she passed by the natural route a large quantity of dark, pitch-colored fæces, of the consistence of balls of firm wax. It is unnecessary to give further particulars. Suffice it to say that the woman was afterwards safely delivered of a small child, and that the fæces have ever since been discharged in the natural way.

The above case requires no comment. It is in all respects one of the most extraordinary on record, and affords convincing proof that injuries attended with the loss of large portions of the alimentary canal, are not necessarily fatal. Coxe's Museum contains a case, from the London Philosoph-

ical Transactions, of a boy who had his bowels protruded, and fifty-seven inches cut off by a cart, who, nevertheless, recovered his health in six or seven months.

To these observations I add the following experiments as having a direct bearing upon the subject under consideration.

EXPERIMENT I.—From a small but full grown dog two inches and a half of the ileum were removed, near its junction with the large bowel, after which the edges of the wound were brought together with six interrupted sutures, introduced equidistant from each other, and made with a common needle and fine silk. The extremities of the ligatures were cut off close to the knots, and the parts being restored to their natural situation, the abdominal wound was secured by several stitches. Several ounces of blood—perhaps four or five—were lost during the operation, and the animal appeared to be somewhat faint. In the evening he was dull and drowsy, and indisposed to move about; but in the morning he was observed to be better, and from that time he rapidly recovered. Four months afterwards, being in good health, and the outer wound perfectly healed, he was killed. Externally the bowel was smooth and natural, with no trace whatever of the former injury, excepting the attachment of a very small process of the epiploon. Had it not been for this circumstance it would have been exceedingly difficult, if not impossible, to find the seat of the wound. The mucous membrane was of the natural color; there was not the least contraction of the tube; and the situation of the breach was indicated merely by a very narrow oblique line or depression. No adhesions existed between the bowels or between them and the walls of the abdomen. See pl. fig. 8.

EXPERIMENT II.—In a second experiment five inches of the ileum were excised, and the lips of the breach maintained in contact by seven interrupted sutures, with the ends cut off close to the serous surface. The divided mesenteric vessels bled so freely during the operation that it became necessary to secure them with a ligature, which, however, lost its hold

in attempting to replace the bowel. The dog, which was small, and not more than about a year old, died in thirty hours from the protrusion of eighteen inches of the small bowel, which was lacerated near its middle, of a dark livid complexion, and apparently sphacelated. Externally the wounded surface was slightly coated with plastic lymph, as well as partially covered with adherent omentum, and the parts above and below were of a deep rose tint. The mucous lining immediately around the seat of the injury was of a purple color; and there was a small coagulum where the ligature had slipped from the mesenteric vessels. No fæcal matter had found its way into the peritoneal cavity; the sutures had retained their situation; the lips of the wound were in contact with each other, both internally and externally; and it was obvious enough that the animal had perished from the protrusion and consequent inflammation of the ileum. The cause of this accident was the premature detachment of the stitches in the outer opening.

EXPERIMENT III.—Finally, in a third experiment the portion of ileum cut away measured eleven inches and a half. The edges of the divided extremities were brought together, and maintained in apposition by means of the continued suture, made with fine sewing silk, well waxed, and armed with a delicate needle. Several of the mesenteric arteries were surrounded with a ligature, which was brought out at the orifice in the wall of the abdomen. The dog, large, and several years old, became sick soon after the operation, which was both tedious and painful; at the expiration, however, of twenty-four hours he took food, appearing lively and even cheerful. He continued thus until the eighth day, when he was observed to be seriously indisposed, and early on the following morning he died.

On inspection, the inner lips of the wound were found to be in a soft, pouting condition, slightly covered with mucous, but no fæcal matter, and without any perceptible attempt at restoration; the suture was still in its place. Three folds of the intestines were glued together at the seat of the injury,

and the parts there were somewhat red, as the effect of inflammation. Numerous petechial spots were observed upon the parietal portion of the peritoneum; and the serous and muscular tunics, both of the small and large bowel, presented, in several situations, a singularly lacerated aspect. The villous membrane in the vicinity of the wound was softened, and covered with a considerable quantity of thick, ropy mucus. The stomach and other organs were healthy. There was no obstruction from fæcal matter, or any contraction of the caliber of the tube.

It will be seen from the foregoing statements that only one of these experiments terminated favorably, namely, the first, in which the excised portion of intestine amounted only to two inches and a half. In the second, the animal might possibly have recovered had not the sutures of the external wound given way, and thus permitted the escape of the bowel, which was subsequently lacerated, and seized with violent inflammation. In the third experiment, in which nearly one foot of the intestine was removed, the dog seemed to suffer severely from the shock of the operation; and, although re-action soon took place, he finally perished, on the ninth day, from the effects of his wounds. How the laceration of the serous and muscular tunics of the large and small bowels was induced, it is impossible to conjecture; nor is it easy to determine how far, or in what degree, it influenced the fatal event.

In two experiments of this kind by Dr. Smith of St. Croix, the results were of the most gratifying nature. In one, the excised portion of the small intestine—probably the ileum—measured two inches; in the other, two inches and a half. In both cases he made use of four interrupted sutures, placed at equal intervals, with the ends cut off at the knots. The animals were killed on the twentieth day, when the union was found to be so perfect that it was difficult to discover the seat of the injury. In one, all the ligatures were detached; in the other, one still remained.

The results of these observations and experiments are in

the highest degree interesting, as they tend to establish an important practical precept. Cases occasionally occur in which the bowel is so much injured, cut, bruised or lacerated, as to be inevitably followed by gangrene, if the parts be not promptly excised, and treated in conformity with the principles here laid down. In extensive mortification from strangulation it becomes, as we have already seen, a question whether the affected portion should be removed by the knife, or the separation of it be intrusted to the efforts of nature. In the latter case, even supposing that the patient would run no risk from the effusion of fæcal matter into the peritoneal sac, he would still be subjected to that most loathsome of all diseases, an artificial anus; in the former, the injured structures would be placed in the same relations as those of a common incised wound, and the chances of recovery would therefore be incomparably greater. In intus-susception, where one portion of bowel falls into another, and where the included piece is finally detached by sloughing, nature performs the same operation precisely that the surgeon does under the circumstances in question, with the difference merely that she is much longer in accomplishing her object; which, however, is not less effectual in the end. The practice, then, would seem to be sanctioned, not only by reason and analogy, but by experiments on the inferior animals and observations on the human subject.

Would it be good practice, in extensive longitudinal or oblique wounds, to excise the affected part, and treat the case like one in which the tube is completely divided in the first instance? My opinion is that it would, especially where the opening is more than two inches in length. My reason for this conclusion is, that wounds of this extent require an unusually long time to heal, that the canal may become permanently contracted, and that the adhesive process is rarely so perfect as when the aperture is smaller. In addition to this, as was before remarked, there must necessarily be more irritation from the great number of sutures, to say nothing of the immediately bad effects occasioned by the protracted manipulation

necessary to apply them. In an experiment, the particulars of which are detailed in another page, and in which the wound was three inches and a half long, death was evidently produced by the ulcerative action of the adventitious substance which formed the bottom of the opening, and which was consequently in direct contact with the contents of the tube. The abnormal aperture was nearly the size of half a dime. The animal lived till the end of the thirteenth day, and was considered entirely out of danger, when the perforation occurred which led to his death. Altogether eleven sutures had been used, of which only two remained. This case, although a solitary one, is sufficient, I think, to show the impropriety of employing so many sutures, or, rather, the inexpediency of attempting to save the affected part in extensive injuries of the intestinal canal.

Littre, an old French surgeon, was of opinion that the best practice, when the bowel is completely severed, whether by accident or mortification, is to bring the superior end out at the external opening, for the purpose of establishing an artificial anus, and to return the other into the peritoneal cavity, having previously tied it to effect its obliteration. The inevitable result of such a procedure would be to consign the patient to a miserable existence, as it would deprive him of all chance of recovery, and leave him with an infirmity that renders him disgusting to himself and to those around. It really becomes a question, as has been justly observed by Mr. Lawrence, whether life itself be desirable, if burthened with the discharge of fæces through the groin or some other region.

A more rational and less objectionable method was proposed by La Peyronie. It consists in passing a double thread behind the wound through a fold of the mesentery, and retaining the ends of the bowel at the outer aperture, by fastening the extremities of the ligature to the surface of the abdomen with adhesive strips. This operation, like that of Littre, is always followed by an artificial anus; but, instead of being rendered incurable, as necessarily happens in the latter case, it generally yields to judicious

management. Several examples in which this expedient was successfully resorted to are on record. I select the following as one of the most recent and interesting.

A man at the assault of Cairo, in 1799, was wounded by a ball in the abdomen, which entered on the right side, and perforated the ileum. The two ends of the bowel were ruptured, separated from each other, and tumefied; the superior being turned upon itself, so that it looked like the præpuce in paraphymosis, and caused complete obstruction of the tube. By four small incisions with the crooked scissors, Baron Larrey, the reporter of the case, divided the neck of the strangulated intestine, and restored it to its proper situation. He then passed a ligature into the portion of the mesentery corresponding with the two ends of the canal, which he returned as far as the edge of the wound, which he had previously taken care to dilate. After dressing the parts, he waited the result. For the first few days the symptoms were unpromising, but they gradually abated in severity, the alvine evacuations daily improved, and in about two months the ends of the ileum were in apposition and ready to adhere. The wound was afterwards dressed with a plug, according to the ingenious plan suggested by Desault, and the soldier ultimately left the hospital completely cured.*

In a case mentioned by La Peyronie himself, the patient was about sixty-three years of age, and the bowel was affected with mortification from strangulation. The whole of the sphacelated part was cut away, and a thread passed through the mesentery, by which the ends of the gut were kept in apposition with the external opening. The fæces were voided through the artificial anus until the thirty-sixth day, when they began to resume their natural route, and in four months the ulcer was completely healed. Subsequently, however, an abscess formed at the seat of the cicatrice, followed by a new rupture.†

* *Memoirs of Military Surgery*, translated by Dr. Hall, vol. i, p. 320.

† Boyer, *Traité des Maladies Chirurgicales*, T. viii, p. 136.

The practice commonly pursued by surgeons, when the bowel is mortified in its entire cylinder, is to pull it gently down, and make a large incision into it, to afford a free outlet to the fæces. The artificial anus thus established gradually diminishes in size, and after some months disappears, the alvine matter, in the meanwhile, resuming its natural route. Upon the propriety or impropriety of this practice it is not necessary here to insist. Further observation can alone settle the question. When there is much inflammation beyond the sphacelated parts, it would probably be wrong to pursue any other treatment; if, on the other hand, the tube is nearly, or quite sound, I should not hesitate to excise the mortified structures, and to approximate the ends by the suture, in the manner already explained.

Selections from American and Foreign Journals.

Engorgement of the Uterus.—In a pamphlet published by Doctor Clement Ollivier, of Angers, on the treatment of prolapsus uteri, he speaks strongly against the use of differently shaped pessaries, which are employed indiscriminately, without paying attention to the cause of the prolapsus, which, according to Dr. Ollivier, is nothing more than an engorgement. Thence arise the symptoms which are constantly observed, and which are attributed to any cause other than the presence of a foreign body, and its contact with a painful and inflamed surface.

Ollivier considers that one of the most frequent causes of this affection in young girls, with whom it is very rare, is masturbation. He says, that one of the most frequent causes of chronic engorgement of the uterus in virgins, or women who do not have any communication with men, is masturbation, which, by gradually inducing disorder in the uterine functions, gives rise at first to spasm of the organ, which affects the secretion of the menstua; on the other hand, this excitement, if frequently repeated, finally brings on a more or less intense sanguineous congestion, which gives rise to a kind of impermeability of the uterine parenchyma, caused by a slight inflammatory affection; then the dysmenorrhœa, at a later period, becoming habitual, induces amenorrhœa, which ultimately determines more dangerous diseases. Sterility is always an inevitable result, unless the diseased state of the uterus being arrested, allows those portions of the viscus which continue healthy to perform their functions; the catamenia may then reappear, but are almost always accompanied by uterine colics; the matrix may recover its powers of conception, but during gestation a period arrives when the uterus, not being able to enlarge freely, on account of the inflammatory action it has undergone before conception, re-

acts upon the product it contains, and almost always determines an abortion; in this way the pregnancies of women affected with morbid conditions of the uterus almost always terminate.

Masturbation, in causing a disordered condition of the entire uterus, produces more frequently an engorgement of the body of the organ rather than of the neck, whilst an exactly contrary condition obtains in women who have connection with men. In virgins the affection of the body of the uterus is more frequently found, that of the cervix uteri more rarely.

Ollivier mentions, among other causes of engorgement of the uterus, the irritation of the sexual organs by primary connection, a cause of irritation of the organ the more dangerous, that it has hitherto escaped the notice of medical men, either because they do not attach sufficient importance to it, or because women conceal from them the knowledge of their illness, notwithstanding the sufferings they endure.

The dysmemorrhœa, which almost always follows abortions, is the result of an inflammatory engorgement more or less considerable, and susceptible of cure; this engorgement is the cause of the sterility that follows miscarriages. The frequency of these inflammatory engorgements observed by the vulgar has rendered abortions more dangerous in their eyes than a delivery at the full period; when they take place during the first pregnancy, they are the more frequently to be attributed to a too great sensibility of the uterus, as yet unaccustomed to the sensations produced by coition. It is this sensibility which gives rise to consecutive inflammatory symptoms; under other circumstances this uterine sensibility causes the disorders which precede menstruation.

Ollivier attributes the sterility which occurs to most women in large towns, after their first and second labors, to a similar cause. The editors of the "*Journal de Medicine et de Chirurgie Pratiques*" observe, with respect to this opinion, that they agree with Ollivier, that the engorgement of the uterus may sometimes prevent conception, but that another cause for this pretended sterility in great towns, and Paris especially, must be sought for. Considerations of a different kind will explain the small number of children found in families, whose pecuniary means are not in just relation with their daily expenses.—*Med. Examiner*, from *Provincial Medical Journal*.

Muriate of Ammonia in Hemicrania.—Dr. Watson, in his clinical lectures, thus speaks of the Muriate of Ammonia in Hemicrania:

It is well worth knowing that muriate of ammonia is most serviceable in this form of hemicrania. Of the remedial properties of sal ammonia very little is known, at least very little was so until lately; its efficacy and the mode of administering it were first made known to me by an old apothecary of this city, who had, in innumerable cases, found it a sovereign cure. It should be administered in doses of half a drachm, or a scruple, and you will find that where persons complain of pain in the jaw and the whole side of the head, the pain freely yields to this dose of muriate of ammonia. I may add that in Germany this medicine is used in many cases where we use mercury, and for the same purposes, as in hepatic affections, and that it produces the required results without any of the inconveniences attending the use of mercury.

Med. Ex., from Prov. Med. Journ.

Case of Idiopathic Hydrophobia.—By J. KIMBELL, M. R. C. S. L.—W. K., aged twenty-four years, of a bilio-lymphatic temperament, has, during the last month, suffered from occasional attacks of palpitation of the heart, occurring generally in the night, and invariably followed by profuse perspiration. On October 4th, 1841, he rode a distance of fourteen miles, and on arriving at the end of his journey at about twelve o'clock, A. M., he was seized suddenly with great difficulty of breathing, pain over the region of the heart, and painful sensations over the chest. The paroxysm continued for a few minutes, when the dyspnœa and pain gradually subsided; he afterwards ate a good dinner, and appeared as well as usual, until about eight o'clock in the evening. when all the symptoms returned with greater violence than before, and to so distressing a degree did the dyspnœa increase, that there appeared to be imminent danger of suffocation. He was now bled to eighteen ounces, but without any manifest relief, and the operation was repeated in three hours to the amount of six ounces, which had the effect of considerably relieving the pain.

About five, A. M., October 5th, I saw him; he could not speak, although conscious of what was passing around him; I was informed that he had had violent convulsive movements of

the arms, which had lasted nearly an hour, and he now appeared to be suffering from a spasmodic constriction about the glottis and pharynx, causing extreme difficulty of inspiration, which had a peculiar crowing character; he had likewise a great desire for water, and complained much of thirst. No sooner, however, was this fluid brought into his presence than it was obliged to be withdrawn; the sight of it caused an alarming increase of pain about the larynx, with a horrible feeling of suffocation; but with the removal of the water the symptoms became ameliorated. From so many hydrophobic symptoms being present, I was apprehensive he might have been bitten by a dog, so questioned him upon this subject very closely; but to all my interrogations he shook his head negatively. During the intervals of ease his pulse was full and soft, and averaged eighty beats in a minute; his tongue was clean, the bowels were regular, and the skin of the natural temperature. Aware that there was a predisposition to spinal disease, I examined the back, and found about the lower part of the cervical region tenderness on pressure, and I observed that this pressure invariably produced an exacerbation in all the symptoms, and of this I fully satisfied myself, and my patient likewise, by repeating the pressure three or four times. A blister was applied over this spot; it rose well, and he soon became able to swallow. Doses of opium were given by the mouth, and an opium injection was administered per rectum. I should have stated that from the commencement of the attack up to the present period, he has experienced a great difficulty in passing his urine, but none in voiding his fæces.

5. Much improved in every respect; but when his head was raised, the spasm was speedily reproduced. He had a constant smacking of his lips, and frequent twitches of his legs and feet; the right arm partially paralysed; no headache; no confusion of intellect.

7. Still improving; spasms had entirely disappeared; he could swallow fluids with the greatest ease; tongue clean; bowels well opened; secretions healthy; he can now be raised without suffering; the blister discharges freely. The dorsal region was rubbed with an embrocation, containing croton oil, tartar emetic, &c., and quinine was given during the day, with henbane at night. From this period he gradually progressed, and at the end of the month was thought sufficiently improved to resume his avocation. One day, however, previous to his intended departure, he had a recurrence of the dyspnœa, but in a much less degree than before. This was

immediately treated by the application of leeches to the cervical region, followed by a blister, when all the symptoms soon vanished. He has two issues, one on each side of the cervical vertebræ, which discharge freely, and he may now be considered convalescent.—*London Lancet.*

Operation for enlarged Patellar Bursa.—Dr. HARGRAVE, of Dublin, performed the following operation on a healthy housemaid, twenty-one years of age, admitted into the city of Dublin Hospital, with enlarged patellar bursa.

June 8th, 1841.—“An incision to the extent of one-eighth of an inch, was made along the outer margin of the tumour; then a very small bistoury was introduced obliquely into the cyst, at such a distance from the superficial cutaneous incision as prevented the escape of the fluid.

“The sac was then cut in several places, chiefly on the anterior surface, and the instrument withdrawn, all the fluid having been evacuated.

“A small compress was then applied, and several strips of adhesive plaster, and a roller which extended from the toes to the knee.

“A splint was also applied, which extended from the middle of the back part of the thigh to the same point of the leg.

“10th. Dressings were removed; considerable diminution in size of swelling.

“Strips of adhesive plaster were again applied nearly in the same way as that recommended by Baynton.—No constitutional disturbance.

“14th. Strips quite loose. A strong evidence of subsidence of swelling.

“17th. Natural appearances of the joint nearly restored.

“Discharged at her own request, but strictly cautioned against returning to her usual employment for some time.

“If the incision, or rather punctures into the sac,” Dr. Hargrave says, “be made with care, the internal surface of the cyst then cautiously scored after it, the fluid evacuated by firm pressure, so as to prevent the ingress of air into the cavity, no danger need be apprehended of unpleasant effects succeeding to this measure.” “The only instances, he adds, “in which the subcutaneous incision might fail, are those where the sac is much thickened, its interior loculated, and

the cells filled with a thick gelatiniform substance: still in such instances, it is a means which should be kept in view.”
Am. Jour. Med. Sci. from *Dublin Med. Press*, Oct. 26, 1842.

Proto-sulphuret of Iron, a new Antidote for Corrosive Sublimate.—By MIALHE.—It results from my experiments, that the protosulphuret of iron, a totally inert article, instantly decomposes corrosive sublimate, giving rise to two inoffensive compounds—proto-chloride of iron and deutosulphuret of mercury. This invaluable property leads me to announce the protosulphuret of iron, in the form of hydrate, as affording by far the best antidote for this poison.

At some future time I will publish the details of my chemical researches, as well as the results of the physiological experiments which I propose to institute on this subject. In the mean time, I advance a chemico-physiological proof in favor of the efficacy of this antidote which appears to possess real value.

Whenever a few centigrammes of corrosive sublimate is placed in the mouth, it immediately produces its characteristic insupportable metallic taste. It is then sufficient to wash out the mouth with the hydrated protosulphuret of iron, in the state of a thin pulp, a condition in which it should always be used, to cause all the metallic taste to disappear as if by enchantment. This fact needs no commentary. It speaks for itself, without need of any explanation.

This antidote is not restricted in its effects to the soluble compounds of mercury—it serves also to destroy the injurious action of many other metallic salts, and particularly those of copper and lead.

To prepare the protosulphuret of iron, any quantity of pure protosulphate of iron is to be dissolved in at least twenty-four times its weight of distilled water, which has been boiled to drive off any atmospheric air; this solution is to be precipitated by a sufficient quantity of protosulphuret of sodium, likewise dissolved in boiled distilled water. The protosulphuret of iron thus formed is to be washed with pure water, and preserved for use in a closely stopped bottle, which is to be completely filled with distilled water.

Although the protosulphuret of iron may be made in a few moments, it is nevertheless proper that it should be kept

ready prepared, to avoid the loss of any precious moments in a case of poisoning.

The direction to preserve this sulphuret from contact of the air should be very strictly followed, as this compound has a strong tendency to pass to the state of sulphate.—*American Jour. of Pharm.*, from *Journal de Pharm. and Chim.*

Cure of Crooked Nose by Subcutaneous Division of the Cartilages.—By PROF. DIEFFENBACH.—[Dr. Dieffenbach remarks that the wrynose is either a natural deformity, or is caused by accident. He has operated in two cases with complete success: in one the deformity was congenital, and in the other it was caused by a fall. He thus describes the operation:]

With a small curved bistoury I made a puncture by the side of the bridge of the nose, at the point of union between the cartilage and the bone, the bistoury was then carried under the skin, so as to separate the cartilage of the side and bridge of the nose from the bone. By a second puncture, on the other side, the middle partition of the nose and the cartilage of that side were divided.

The nostrils were then stuffed with lint, and the nose retained in its proper position with strips of plaster. The parts healed quickly, without inflammation or suppuration.

N. Y. Lancet from Gaz. Med.

Mode of Treating Itch at Berlin.—By DR. HAUCK.—The treatment of itch has lately been made the subject of extensive experimental observation in the Berlin hospitals, and it is satisfactory to learn that a slight modification of what is termed the English method, has been found in every respect superior to any other that was adopted, accomplishing as it does all the desirable objects of curing the disease quickly, certainly, and economically.

The remedy employed was the sulphur and soap liniment of the Prussian Military Pharmacopœia, composed of one part of flowers of sulphur, and two parts of soap mixed with sufficient hot water to make them into a soft ointment. The patients, after a warm bath of soap and water had been applied, were placed undressed in a chamber, kept constantly

at a temperature of 95° F., and well rubbed with the ointment over all the parts where the eruption had appeared, three times a day, and then made to sweat profusely by putting them in warm beds. This system was continued for three days and nights; on the morning of the fourth each patient had a warm bath, and then if not cured, was provided with clean bed and body-linen, and put in a ward of ordinary temperature, while the suspicious parts were still rubbed with the ointment, and a warm bath taken every other day. In general, no external medicines are given; but the diet allowed was reduced to a fourth portion, and water only given to drink.

In this manner, but with one short interval, 1981 were treated and cured between September, 1839, and February, 1840, making the total number of days of treatment 15,890, which gives on an average eight days and a small fraction for the cure of each of patient, and for the expense of each about two dollars. The exact result was, that—in three days there were cured 42, in four days 161, in five days 333, in six days 376, in seven days 207, and in more than seven days 859.

The treatment of these last was prolonged by many circumstances which can hardly cast discredit on the remedies. In many among them the itch was soon cured, but they remained under treatment for the ulcers which come on from long neglect of it, or were kept in the hospital till there was no chance of the ulcers communicating the disease. Others among them after being cured of the skin disease had to be treated for other affections, such as ophthalmia, fever, &c.; and others again had their cure delayed by an obstinate refusal to adopt all accessory treatment. And in addition to these causes giving rise to an apparent increase of the length of time necessary for the cure of the disease, there were some others dependent on the management of the hospitals, and other circumstances quite foreign to the treatment adopted, but which, had they not existed, would have permitted the average number of days of treatment to have been stated much lower.

In the whole fifteen months there occurred only eight cases of relapse, less than half per cent. of the cases treated; and among these there was, in many, good reason to suspect a fresh infection. The other cases in which there appeared to be a relapse were in fact only examples of eczema resulting from the stimulus of the skin by the sulphur. In no case did the treatment of the skin give rise to any general

disorder, or to the inflammations and congestions which some have described as resulting from it.—*N. Y. Lan.*, from *British and Foreign Medical Review*.

Sleep of Animals and Man.—Most animals sleep more than man; some indeed for months—as the hibernating tribes of bats, dormice, marmots and bears. Cats and dogs would seem to have the faculty at will, as have some idiots and persons of a low order of intellect. The ideas or impressions upon their minds are so feeble or so few, or are made at such long intervals that succession is lost for want of continuity; hence the organ retains imperfectly, and but for an instant, the image which the external senses have presented to it; weariness supervenes, unconsciousness follows, and lastly, sleep, as a necessary consequence of inanition, is induced. It is observed, however, that monkeys do not sleep as much as other animals. Whence is this apparent deviation from the ordinary law of nature affecting animals? Is a monkey a reasoning animal? Observe a dog chained: he twists his chain, shortens it, and cuts himself off from his platter. Does he seek to untwist it, to restore the links to their wonted extension? No; he continues tugging and howling till some friendly hand frees him from his toils, and restores him to his former range. But how is it with the monkey under similar difficulties? Why, he deliberately untwists the chain which he cannot sunder, and hence evinces something like reason. Is the sleeplessness of monkeys then a proof of reason? We think so. But infants are frequently sleepless? Yes; but never in a state of health. Restlessness in them is always an indication of hunger, or a symptom of disease. The absence of sleep cannot be long sustained. Damians slept on the rack; Luke in his iron crown; and a battalion of infantry have been known to slumber during a march! Muleteers frequently sleep on their mules, post-boys on their horses, and seamen “on the high and giddy mast.” “Massa call you,” said a negro to his comrade who had fallen asleep near him; “Sleep has no massa,” replied the wearied boy; and he was right. We may bear the privation of fire, food, and even drink, longer than we can the want of sleep.—*Dr. Binn’s Anatomy of Sleep*.

Case of Nasal Enlargement successfully treated.—By Dr. CHAS. CLAY.—This was a case of peculiar enlargement of the nose, in a young lady, unaccompanied with pain or any other inconvenience than the size. Besides constitutional treatment, Dr. Clay made pressure on the organ, by means of a mould made of plaster of Paris, which was useful not only by pressing uniformly, but also by its mere weight. The mould was secured to the head by different tapes, which were applied so as to increase the pressure. In a week the mould was found too large, and a second one was made; a third, fourth, and fifth were obliged to be made, as the nose diminished in size, till it regained its natural dimensions.

London Lancet.

THE WESTERN JOURNAL.

Vol. VII.—No. III.

LOUISVILLE, MARCH 1, 1843.

TRAVELLING EDITORIALS.

This phrase admits of no less than three applications. It may mean editorials for the benefit of travellers; editorials of such excellence and interest, that they will travel far and wide among the profession; or editorials written while travelling. It is in the last sense that we use the expression. Of the course and limits of the journeyings on which we have entered, an intimation was given in our January number. Of the *materiel* which we may work up into our monthly communications, we cannot speak so definitely; inasmuch as we know not what may offer, and do not intend to be rigidly professional. That would be to come with “malice prepense” into conflict with the tastes and habits of our brethren, many of whom, with ourselves, know a good deal out of the profession, however little they and we may know in it. When Lord Brougham was made Chancellor of England, a London wag exclaimed, what a pity it is, that his lordship does not know something of the duties of his high office, for he would then be a man of universal learning. Disclaiming all personal application of this sarcasm, we shall proceed to

state, in this first letter, the object which is *carrying* us to the shores of the Gulf.

Diseases of the West.

More than twenty years ago we announced the design of publishing a work on this subject. Of the causes which have delayed its preparation, we shall not speak in detail, and will mention one only. Reflection soon convinced us, that the undertaking was of greater magnitude and difficulty than it first appeared, and could not, indeed, be accomplished without extensive and patient personal observation, particularly in the the north and the south, that the *feathering* out of our endemics in those opposite directions might be distinctly ascertained. But excursions for that purpose were impracticable, till the last summer, when, in visiting the shores of the Lakes, we commenced the series of medical travels which have now been resumed. In their prosecution, it is our object, 1st. to acquire a knowledge of the modifications of our climate, from the Lakes to the Gulf, with their influence on the constitutions of the people. 2d. To note the various geological and topographical conditions, which may be supposed, directly or indirectly, to occasion or prevent diseases. 3d. To observe the diet, drinks, occupations, and manners and customs of the inhabitants, as predisposing to, producing, or preventing diseases. 4th. To obtain from medical gentlemen, in all parts of the country, such information concerning the diseases prevalent in their respective localities, as can be drawn from them by personal interviews. 5th. To collect facts for a comparative estimate of the physiology and pathology of the Europeo-American, the Indian and the Negro.

Our field of observation extends from Michigan to Florida, and from the western slopes of the Allegheny mountains, to Missouri, Arkansas, and Iowa.

Such is the enterprize on which we have entered at an advanced period of life, though with some of the activity and feeling which belong to earlier years. Should we not live, or otherwise fail, to achieve it, we have the satisfaction to believe that our researches may still be of some benefit to the profession, inasmuch as we can scarcely fail to record many valuable facts, which might otherwise be lost, and which by some abler hands may be presented to the public.

In addressing these paragraphs to our readers, and all other medical gentlemen within the extended region we have designated, we are actuated by an earnest desire to secure their co-operation. Without it, a failure is inevitable; with it, *some* degree of success may be regarded as almost certain. Therefore we respectfully solicit their co-operation. We shall devote the months of March and April to Florida, South-Alabama, and the south-east of Mississippi; May to the Delta of the Mississippi; and June to the upper parts of Louisiana, the western portion of Mississippi, and the eastern part of Arkansas; and we take this method to request such of our readers as reside in those States, to prepare for us, in writing, such transcripts of their experience as may be fit materials for our projected work. We would, moreover, extend this request to all who practise medicine in the various States west of the Alleghenies, in the hope, that they will at once perceive the necessity of their co-operation, and that they will forward to us, at no distant time, the facts which are requisite to a full history of our most important diseases.

Bed and Banks of the Mississippi.

If it had a rocky bed and banks, well defined, and unchangeable, the Mississippi would be the most magnificent of rivers. As it is, neither beauty nor grandeur can be ascribed to the "Father of Waters." His great attribute is power, but in its exercise he is so often obstructed and foiled as to detract greatly from his dignity. At the very moment of writing this sentence, the afternoon sun shines upon us through the stern windows of the Queen of the West, showing that she runs nearly north-east instead of south. Thus it is that the tide of rolling waters is deflected from its course, and almost turned back, by the banks of mud and sand which itself has brought down and deposited. Struggling to reach the Ocean, the *true* father of rivers, it is compelled to fight its way, to turn aside, to abandon its old channels and excavate new ones. For a short distance the waters may flow between parallel and equally elevated banks, but they soon spread out on one side, or divide into different channels, which, ere long, they are compelled by new accumulations of sand and sunken trees to abandon. Seen from the surface of the stream, the higher banks present a perpendicular and ragged front, from which masses are perpetually falling into the stream, to pollute its waters for a time, and then desert them for a new location. The

horizontal and waved stratification of these banks, mark them as deposits from the river itself, consisting of varying proportions of sand and clay, with enough of the carbonate of lime to render many specimens slightly effervescent. A medium height of water is that which does greatest mischief to the banks; and its abrading force is greatly increased by the waves raised by a southerly wind, and by the wheels of the numerous and powerful steamers, which, in ascending, overcome, in descending, outstrip the current. As the latter must long continue to be an *increasing* cause, the work of destruction is not likely to abate. Opposed to the perpendicular and crumbling banks, are low and shapeless beaches, which in high water are buried up, but in low, present extensive deposits of drift on their slopes, while their flatter surfaces are covered with dense groves of young cotton trees. Now and then three, very often two ranks of this kind, having different ages, may be seen from the river, the youngest in front, the oldest in the back ground. This tree, the *Populus angulata* of the botanists, gives character to the SYLVIA MISSISSIPPIENSIS, and, if not the offspring, is at least the adopted child of the waters, which deposite the soil in which it attains a magnitude unknown elsewhere; while its down enveloped seeds, in countless millions, are transported by the current to every new plantation, where they speedily germinate. The trunk of this tree makes excellent fuel for steam-boats, and thus will the Mississippi forever create the means by which man will stem its mad and mighty current. If the trees upon its banks were to perish, or the cotton wood become incombustible, the effect would be felt throughout the entire west.

Tertiary Formations.

Such of our up country readers, as have trodden from their infancy upon rocks of the secondary class, would do well, should they descend the river, to keep a good look out for the Chickasaw bluffs of Randolph and Memphis. Vicksburg, Grand-Gulf, and Natchez, present fine sectional views of the tertiary formations which stretch so extensively through West-Tennessee and the middle portions of Mississippi and Alabama.

Steamboat Bars.

Now, that ardent spirits are no more seen on the dinner tables of our steamers, and the number of passengers, who desire or dare to

frequent the bars, is greatly reduced, it would seem to be natural, and not difficult, to suppress them entirely. The chief motive for retaining them is destroyed, when they yield but little profit; and, therefore, the owners of boats might be expected not to resist their abolition. But under what influence can this important reform be brought about? We answer, that of the friends of temperance, exerted on the general government. After having legislated on the registration and inspection of steamboats, even to a prescription for tiller chains, it would be no unwarrantable exercise of power, to suppress the sale of intoxicating drinks, both to passengers and operatives. The principle on which Congress might place this interposition, is the same as that on which they have directed chains for ropes—the safety of passengers. No observing man can believe but that many of the disasters which have happened to our steamboats were the effect of intemperance, particularly indulged in at night; and that, with its suppression, the number of accidents would be signally abated. We cannot but ardently desire to see the friends of temperance move in this matter.

India Rubber Life-Preservers.

On our present voyage down the Ohio and Mississippi, not less than before, we have marvelled to see so few of these valuable articles. Hundreds who now travel on steamers without them, would, if they had never been invented, deplore the want which they now neglect to supply. With a good life preserver around her chest, even the most helpless and timid woman, would be safe for several hours unless the water might chance to be as, it now is, but two or three degrees above the freezing point; and still but few ladies are provided with them, and still fewer gentlemen, although none of the former and not many of the latter know how to swim. By the way, it is a serious and absurd defect, in the physical education of our daughters, that they are not taught to swim; as it is a valuable exercise in early life, and a source of confidence and security even to old age. In past times, when our women remained at home, because they could not travel, the latter consideration was of less moment than at present, when so many perform long voyages, at every moment exposed to casualties which might drown them, merely because a day had not been devoted to their instruction in the art of swimming.

Steamboat Explosions.

All passengers who are exposed to these accidents ought to know, that the steam which spreads through the cabin, when explosions occur, will not scald those parts of the body which are covered even thinly. Thus, those, who are in their berths when such an accident happens, should lie still, and cover up their heads, instead of rising, as has so often happened; and those who are up, might protect themselves by covering their hands and face with an apron, the skirts of a coat, or even a silk handkerchief. Reaching the skin through such a fabric, steam, which would otherwise blister, will scarcely redden it. A further precaution, not unworthy of notice, is to suspend or hold the breath, at the moment of becoming enveloped in the steam, by which its introduction into the larynx and lungs is prevented.

Winter Temperature of the Mississippi.

From the mouth of the Ohio to New Orleans, the distance is one thousand fifty-nine miles—the distance on the meridian 3 degrees, rejecting small fractions. Thus in passing through a degree of latitude, the river flows three hundred and fifty-three miles. Its temperature at the junction between it and the Ohio, we found to be 34° , which rose at a constant rate to New Orleans, where we find it 42° ; giving an increment of two degrees and two thirds of surface temperature, for one degree of latitude, and for every three hundred and fifty-three miles of current.

Climate of New Orleans.

The very night of our arrival afforded conclusive evidence that great and sudden changes of temperature occur in the delta of the Mississippi. On the 14th of February, when below Baton Rouge, the heat of the air, at half past 11 A. M., was 71° . Rain with thunder and lightning ensued, accompanied by westerly winds, and in two hours the thermometer sunk 19° . Before sun-rise the next morning, at the wharf, it was at 28° , making a fall of 43° in twenty hours. A more extreme change seldom occurs in any latitude. The next morning it was at 32° . This morning at 34° , with a copious white frost. The liability of this climate to such great depressions of temperature, so late as the middle of February, should admonish those who seek for relief from pulmonary diseases, by a voyage to the south, to look out for disappointment, if they start in winter, or stop here.

D.

NEW ORLEANS, February 17, 1843.

THE
WESTERN JOURNAL
OF
MEDICINE AND SURGERY.

APRIL, 1843.

ART. I.—*Post-mortem Researches.* By BENNET DOWLER, M.
D., of New Orleans.

[The reader will excuse the references to dissections not yet published. A want of time to copy from my MSS. in folio volumes must be my apology for using the scissors, instead of the pen, in collecting the detached portions from which I have patched this article into its present form. For a part of the dissection, on which the paper is founded, I am under great obligations for assistance, to the following gentlemen: Dr. Wederstrandt, Resident Physician of the Charity Hospital; Messrs. Saunders and Bates, resident students of the same; Drs. Osborne, Young, Luzenberg, and Nicholson.]

When in the course of medical inquiry, we meet with dogmatism on the one hand, skepticism on the other, and uncer-

tainty every where, we cannot do better than to appeal at once to the decisions of post-mortem anatomy, which, though they may fail in settling some points in dispute, will deceive us in none, and satisfy us in many. One author asserts, that there are one hundred and fifty fevers; another, that there is but one. What Goëthe says of the satirical poet, is applicable to the medical controversialist, who surrounds himself with a "dazzling fence of logic," and is eager for the conflict—"When I have called the bad, *bad*, how much is gained by that? The man who would work aright must not deal in censure, must not trouble himself about what is *bad*, but show and do what is good."

The book of Morbid Anatomy, though written by Nature, is a book of knowledge to those only who read patiently, and interpret its language truly. Pride and self-sufficiency, alone, will deride and decry this modest, safe, though laborious mode of investigation. It was a homely but just saying of one of the reformers, that every man carried a Pope in his belly. There is, however, one panacea for the cure of medical infallibility, which is this: let a practitioner, of this class, carefully dissect fifty or more persons treated by himself, or by another; let him estimate the blunders he has committed—blunders, that an accurate knowledge and a careful examination of the land-marks of disease, might have prevented! and, though his stock of pathological fiction may be diminished by this process, he will lose nothing valuable. Romance will be re-placed by reality. The piratical maxim, "that dead men tell no tales," is erroneous; they are the best witnesses.

To say that morbid anatomy throws no light upon medical treatment, is an admission flattering to empiricism, unjust to our science, fatal to investigation, opposed to truth, and at best, an indirect attempt to excuse professional indolence. Some may think that the following quotation from an able writer is too sanguine in its anticipations; but, what good can we derive from despair? "The time cannot be far off, when the term fever must be entirely discarded from our books,

and diseases named according to the tissues which they implicate. Then, and not till then, can it be expected that the laws of deranged action will be properly interpreted, or fully comprehended. All diseases, I feel confident, will ultimately be found to have a local origin and habitation. The artificial nosology of Sauvages, of Hoffmann, Cullen, &c., has had its day." (Prof. Gross' *Path. Anat.* vol. i, p. 30.)

It is, perhaps, true, that pathological anatomy is in advance of therapeutics. Both are in a state of infancy. The sooner we learn the true position of the enemy, the better.

The sentiment which Boswell makes Johnson utter concerning his opinions, applies but too often to the physician: "I don't like to have any of my opinions attacked. I have made up my faggot, and if you draw out one, you weaken the whole bundle."

NUMERICAL AGGREGATIONS, NUMERICAL ANALYSES, NUMERICAL AVERAGES, promise results, which, though less certain than mathematics, less poetical than speculation, will, with every succeeding generation, approach nearer to perfection. The amount of labor by this method, for a single individual, would be absolutely appalling to the most ardent imagination; "but many hands, make light work." The book of symptoms, the book treatment, the book of morbid anatomy, remain to be written upon this statistical system. To count correctly, to overlook nothing, to observe philosophically, is a heavy undertaking, more especially as the chaff and the wheat, the ore and the dross, must often of necessity be collected at the same time: the laborer cannot always pre-determine which are the essential pathological facts, anterior to results, since these are the objects of his pursuit, and are not, as yet, supposed to be fully appreciated and known. A few facts, however correct, cannot be relied on for establishing general results, or principles. Analysis is the ordeal which tries his materials, and consumes the uselesss. Even if he discover nothing new, he confirms what was discovered before, and shows its proportional frequency, order, and connexion with

other events. The NUMERIC METHOD, is something better than the EASY METHOD, CONJECTURE.

A more extraordinary statement than that of Louis was scarcely ever made, by a cultivator of medicine whose experience had been very extensive: "he says at the close of his labors, when he submitted *all* his facts to the unerring test of arithmetical analysis, *that in every instance were the a-priori conclusions which he had formed from the recollection of his own facts found to be erroneous.*" The import of this statement seems to be, that all systems of medicine, except the ARITHMETICAL, are more likely to prove false than true, upon analytic examination.

In order to test this apparently absurd, and paradoxical principle, I spent considerable time, for several successive days, in examining the tongue alone, in persons in all stages of yellow fever, writing down the appearances at the bed side, in the charity hospital, during the epidemic of the year 1841; and, though I had been extensively engaged in practice during several epidemics, and had written many cases, which I have not to this day analysed, yet I found my previous opinion had been erroneous, so far as the cases above mentioned afford a rule by which to judge. I had supposed, from memory, that the tongue of most persons affected with this fever, had some well marked morbid appearances. But, though some were found to be red, some white, some pointed, some tumid, some dry, &c.; yet, *the majority were natural*. I am far from thinking that memory, when tried by the mere test of arithmetical medicine, will prove generally thus treacherous, or that the cases above mentioned are sufficient to prove, in most cases of yellow fever, that the tongue is healthy.

NUMBER, as an element in working out results, is a safe guide, only so far as its facts are accurate, pertinent, and essential. In morbid anatomy, which is, in connexion with symptoms, the foundation of correct treatment, these are all important, otherwise, we must fall into errors the most fatal

under the imposing array of STATISTICS, and MEDICAL MATHEMATICS. AGGREGATIONS may be true, and yet of no value.

The object of this paper is, therefore, to notice some of the *difficulties, errors, and modifying circumstances*, incidental to a just appreciation of morbid appearances, some of which have been often overlooked or misapplied. The numeric is eminently a false method, when its facts are inaccurately stated.

The *sooner* post-mortem examinations are made, the better. This matter we will illustrate as we proceed. The French writers, who excel in pathological anatomy, have not, certainly, overlooked the great changes that take place in the body within thirty-six hours after death. If they have erred it is in overcharging the picture. But in this, as in some other cases, their knowledge is in advance of their practice. Andral says, that, "in almost every body, opened at about thirty-six hours after death, reddish effusions are found in the cavities, red ecchymosed spots in the great cul-de-sac of the stomach," &c. (Path. Anat., vol. i, p. 49.) And yet, strange to say, this is about the average period, for post-mortem examinations, among the most eminent French pathologists; a fact which throws no little obscurity and doubt, over the results of their numerous observations. Open almost any of their works, and it will be seen, that their autopsies have been delayed from twenty-four to forty-eight hours after death. Louis, in his work on consumption, records fifty-one cases in which the period of the dissection is mentioned, making an aggregate of fifteen hundred and five hours, affording an average to each case of more than thirty hours; his other works, will, I suppose, give about the same average, except his book on the yellow fever of Gibraltar, which gives fifteen.

If I am not much mistaken, the celebrated Broussais *never* mentions the period of his post-mortem examinations at all. In Cook's Morgagni, the same omission is almost constant. Bertin's work on the heart, approved by the Academy of

Medicine, has thirty-three dissections, the average to each being nearly twenty-nine hours after death.

Rilliet and Barthez, on the pneumonia of children at Paris, record a number of examinations, none sooner than twenty-eight hours, and some as late as forty-four hours. In Billard's interesting work on the diseases of children, the period of the numerous dissections is not mentioned with any precision, except in two or three cases. He often says the dissection was performed next day. Now, this may mean seven or eight hours, or it may mean nearly two days. A person dying at 10 o'clock, A. M., may be examined the next day at 5 or 6 o'clock, P. M., forty or forty-one hours after death. Though fractional parts of an hour may be of no importance, even in hot weather, yet, when the dissection is delayed two days, as is often the case with these and other authors, many conflicting elements conspire to efface appearances that existed at death, or to create others, simulating anatomical characters of diseases which did not exist.

Out of one hundred and fourteen yellow fever dissections, not to mention others, a large number were made, or at least begun, from five to ten minutes after breathing ceased, before cadaveric injection, permeation, congestion, and exudation, had time to cause any alteration; hence, it may be inferred that the exact condition of the organs is truly reflected.

I have caused the body to be placed on its right side, for example, immediately after death, both in the night, when the air was cool, and in the day, when it was warm, and in from three to six hours, have observed that the upper or left side was comparatively bloodless, while the lower was loaded with blood externally and internally; the intestines being finely injected, and much reddened, in such dependent parts as were most favorable for the influence of gravitation. (Dissection XLIV.) But dead bodies differ very much from each other in their susceptibilities to cadaveric infiltration. DEATH, in the common acceptation, may, and often does, take place hours before the body dies in a physiologi-

cal sense. Volition, thought, sensation, respiration, and the heart's action have ceased, and for all the purposes of existence, life is no more; but it does not hence follow, that all the vital actions are extinct; both animal and organic life may exist in many cases. As a proof of this, muscular contraction and capillary circulation, which these dissections fully establish, might be mentioned.

AS MUSCULAR CONTRACTION, after apparent death, is not known to exert a modifying agency over the morbid appearances, it is referred to here, merely as confirming the doctrine of capillary circulation, as surviving that of the heart and large arteries—a doctrine, which if true, renders tardy dissection a most fallacious guide in judging of venous congestions, vascular turgescence, organic reddenings, blanchings, &c.

The precise boundary line between life and death, is dubious and undefined, and the dissector cannot commit a greater blunder than to wait for the work of putrefaction, or even post-mortem infiltration, gravitation, &c.

According to my observations, muscular contractions, after death, are more common in the yellow fever subject than in any other class of fever victims.

A slight scratch with the back of the knife across the course of the muscular fibres, in any part of the body, causes the muscles to contract, and to swell into firm ridges exactly at the line of mechanical irritation. The summits of these elevations are sometimes an inch above the surrounding level, with bases of two or three inches in diameter, the muscular fibres assuming zigzag, wavy lines, until they relax into repose again.

Observe the arm as it lies extended upon the table, supple and relaxed—we strike it with a horn, a cane, or metallic rod, a conductor or non-conductor of electricity, either on the skin or on the naked muscle—contraction takes place instantly, or sometimes slowly; for example, we strike the biceps muscle, about its middle—the arm is bent, the hand, perhaps, strikes a violent slap against the face, or rises more

slowly with an uniform motion pointing to the zenith, and then gradually falls back from the perpendicular to the horizontal position. This operation may be repeated for several hours, in some cases just so long as the muscular contractility remains unimpaired. In some subjects, this property does not exist, and it varies in different parts of the same subject; the masseter muscles lock the jaws firmly together, in some cases before death, oftener just after; the recti and other abdominal muscles, in a few instances, become rigid in like manner, while the fore arm bounces from the table after every blow given even by the fist of the operator. When the rigidity of the entire muscular system exists, this property is lost; but where the entire body is supple, it does not follow that the power of post-mortem contraction is always present. It exists in the fibres of the heart, but is seldom sufficient to move the whole organ.

Examples might be multiplied were it desirable; the following are supposed sufficient for the present occasion:

E. M——: (Dissection XCII.) A stroke on the arm between the shoulder and elbow, caused the fore arm to rise from the table, and after continuing perpendicular about a quarter of a minute, it slowly fell back to the horizontal position. During the period that the arm continued elevated, the muscles where the blow had been given were contracted into a ridge, which, gradually sinking, the arm fell down to the level again. These experiments were often repeated with the same results; other muscles, in different parts of the body, jerked or contracted when scratched or irritated.

O. S——: (Dissection XCIV.) This subject when struck, as in the last case, contracted his arm strongly, sometimes holding it up a minute after the stroke. The experiment was repeated for several hours.

Not wishing to enter upon the subject of the capillary circulation, only so far as it may exert a modifying influence over the post-mortem appearances, I may however be permitted to say the following facts prove that the direct action of the heart, and its indirect, or suction power, joined to the suc-

tion produced by respiration, are not necessary to the rapid motion of the venous blood.

It has been observed by dissectors, that, in the dead body the left side of the heart and all the great arteries are generally found empty. Now of all conceivable facts, this is precisely the fact which ought not to happen, upon the theories which are usually brought forward to explain the capillary circulation. We might, on the contrary, expect to find the left side of the heart and arteries distended, the veins empty. It is erroneous to say that the heart and arteries possess a contractile power, which, after death, expels the blood. We have but to look into the body to see the arteries, not collapsed but hollow, not contracted but large, not gorged with blood during the last moments, when the heart is no longer able to impel it onward. Considering the emptiness of the arteries, it is surprising that they do not contract or collapse completely when exposed to the pressure of the atmosphere, without counteracting distention from blood within their calibres. Moreover, the circulation of chyle by the lacteals, and of lymph by the lymphatics, cannot be accounted for by the heart's action, directly or indirectly.

I had not proceeded far in the yellow fever dissections, in 1841, before several cases of rapid and copious hæmorrhage took place from incisions in the scalp for the purpose of removing the skull-cap, and from incisions in other parts of the body. The quantity of the blood, the force with which it was discharged, and the elevated points from which it flowed, all indicated a power greater than gravitation as well as essentially different in its mode of operation.

F—— P——, aged nineteen, was, about fifteen minutes after death from yellow fever, placed on an inclined plane, the head being the highest part of the body. An incision, beginning an inch above the eyes, and continuing around the head, at the same distance above the ears, discharged, from the forehead, temples, and other parts, one pound and a quarter of blood, in about fifteen minutes: on

removing the skull-cap and dura mater, without wounding the brain, the same quantity flowed in half an hour, natural in color, coagulating as in health. (Dissection XXI.)

The body of a man aged thirty, two hours after death from yellow fever, was placed upon the dissecting table, the head being the most elevated part; a circular incision, made an inch above the ears, discharged in half an hour from sixteen to eighteen ounces of good colored blood, which formed a coagulum of good consistence. (Dissection XX.)

A young man, ten minutes after death from yellow fever, was placed on a table, as above; the brain was quickly removed, and in a few minutes after, about twenty-four ounces of blood flowed from the vessels of the head. The blood was of a good color and coagulated firmly. (Dissection XVIII.)

L. B——, aged twenty-one, immediately after death was placed on the dissecting table, the body being very warm and the veins full: the chest was quickly opened. Dr. Young, of this city, who assisted in the dissection, thought he discovered a slight movement or contraction of the heart. The subclavian vein was opened at about the middle of its course. From the orifice the blood shot up two or three inches, an elevation greater than any part of the body, running with such force as to appear like a vital action. From three to four pounds of good colored blood, clotting as it cooled, were discharged in about half an hour. (Dissection LVII.)

G. J——, of Pittsburgh, aged thirty-two, in one hour after death, discharged from an orifice in each jugular, made by Mr. Saunders, student of medicine, eight pounds of healthy blood, according to the estimation of several medical gentlemen. At first the blood shot out some distance. In the second and third hours after opening the veins, about twenty ounces more flowed, before opening any of the cavities. The muscles, which were of extraordinary size and beauty, possessed contractility for several hours. (Dissection LXVI.)

In the case of J—— B——, of L——, the post-mortem blood-letting was nearly as profuse as in the above. (Dissection LXII.)

J—— C——, aged thirty-four, about five minutes after death presented the following evidences of capillary circulation:

The veins of the neck and extremities were prominent. A vein was opened in the left arm—the blood flowed copiously, and jetted freely, on moving the muscles. On passing a ligature around the right arm, as for ordinary blood-letting, the veins became more prominent; one being opened with a lancet, the blood shot out as in the living subject to the distance perhaps of eighteen inches. The left jugular was immediately opened, from which the blood flowed freely, but without jetting; and in an instant after, the abdomen and chest were exposed, by a rapid dissection. One of the branches of the coronary vein of the heart, upon its most elevated part, was punctured, and though this twig was not larger than several others which were distributed upon the hearts' surface, yet, in a few minutes, (ten to fifteen,) it discharged one pound or more of blood. The omenta, mesentery and other viscera, had their external veins beautifully and equally distended. The hollow veins being cut, from three to four pounds of blood accumulated in the cavities, forming good clots.

Without anticipating the appearances of the brain in this case, I may remark, that it was examined last, and though the veins were numerous and large in its envelopes, yet they were nearly empty, owing, probably, to the previous discharges by the decending cava. (Dissection LXXI.)

E. M——. About an hour after death, the veins being distended, blood-letting was performed in the arm, in the usual manner, but without a ligature: the stream was of good size, and shot up, falling in an arch of four or five inches in diameter at first, but, gradually diminishing, it ran down the skin of the arm, amounting in about thirty minutes to nearly as many ounces, though the arm was elevated above any

other part of the body—it was also lowered—the abdomen and chest were opened—the heart was pressed; but, all these changes produced none upon the stream, which, becoming weaker and weaker, at length ceased. The right side of the heart was greatly distended; and the coronary veins upon the highest surface of the heart, when punctured, shot out blood freely. This subject retained the power of muscular contraction for hours after death. (Dissection XCII.)

O. S——. On incising the scalp, the blood ran chiefly from the forehead and temples, in a double stream, uniting into one, upon the back of the head, nearly as large as a goose-quill, and in a few minutes, amounted to about one pound: on removing the skull, without wounding the brain or its inner envelopes, a like quantity was discharged, with still greater rapidity. It happened, accidentally, during dissection, that the ligature and compress were removed from the orifice of the vein in the arm, from which, five days before, he had been bled—the blood spouted forth spontaneously, at first in a good stream, gradually diminishing to a slow dropping in thirty minutes. The orifice was un-united, and had a dark color which extended to the surrounding tissue, not less than two inches.

In this subject, muscular contraction continued for several hours. (Dissection XCIV.)

The following case, by some called yellow fever, by some congestive, but which perhaps is not referable to either, is very remarkable:

J—— M——, died, from a fever which lasted twelve days and a half, and was carried directly to the dissecting table—every part of the body was, as far as I could judge, without a thermometer, hotter than in health, appearing to my touch, nearly as hot as in *solar asphyxia*. The febrile smell was very offensive, as in the living body, in the most malignant fevers. The skin was very white, the tongue moist and pale. The external veins, especially those of the arms, were distended, as in health after exercise. Two were opened. The blood flowed rapidly, projecting several inches, and, after-

wards, more than a foot, by the aids of compression and the movement of the muscles of the arm. As the blood cooled, a coagulum formed, having a consistent fibrinous, semi-transparent coat. The cavas discharged about four pounds of blood. There was no cadaveric hyperæmia. The anterior, as well as the posterior walls, and viscera of the cavities, were alike supplied with blood. The brain, which was examined last, had but little blood, though its vessels were much developed, dilated, and moderately distended with air bubbles, like the effervescence of soda-water or soap-suds.

About one hour after the body was placed on the table, a free, warm sweat appeared, first, in drops upon the face and neck, and then, extended to all parts of the body. The weather was mild and pleasant. The cadaveric heat, the hot copious perspiration, and the external venous distention, afford strong contrasts to the condition of the living body during congestive fever.

Had this body remained unopened one or two days, what would have become of all this blood? To say nothing of cadaveric injection, and exudations, the transporting power of the capillaries might have deposited the blood in new situations, sponging it out from structures that had suffered during life from acute hyperæmia, engorging others that had been healthy; blanching the former, reddening the latter. At the right side of the heart, venous stagnation probably begins, and its vessels being wholly passive, it travels outwardly towards the extremities of the veins; the capillary power is soon neutralized by an opposing mechanical force, or ended by the entire cessation of vital action.

Since CADAVERIC GRAVITATION aggravates some morbid appearances, removes others, and may observe or change all; and since the capillary circulation may survive the heart's action, and thus, being no longer balanced by supplies from the central fountain, may, in a few minutes after death, remove morbid accumulations, depositing them in the great veins or elsewhere, surely it is important to make post-mortem examinations as soon as possible.

Unusual and protracted HEAT of the body after death, is, I am inclined to think, a presumptive proof that the capillaries are more or less active at the time.

My reason for dwelling so long upon this subject, is, that pathologists have not, so far as I know, adverted to it with a view to apply it to post-mortem appearances. Its physiological bearings do not fall within my design at present, and though I am not able to appreciate, fully and exactly, its modifying agency over morbid anatomy, yet others may be more successful in its application. Facts have not been sufficiently numerous for exact analysis.

Another fact which exerts a modifying power over morbid appearances, a fact which has been too generally omitted by authors, is the following: If the body be warm, the blood fluid, a morbid congestion in one cavity may be removed, or lessened, at least, in some cases, by severing the blood vessels leading to another, especially after an acute disease of short duration. Let the jugulars, or the cavas be cut, or the heart and lungs be removed; in an hour, or less, the brain and the abdomen may become more or less bloodless. Though the blood vessels may have been previously engorged, and their calibers dilated, now, they may appear in a very different condition, collapsed, and comparatively exsanguious. Again, let us suppose, that in two persons recently dead, we proceed to examine whether hepatic congestions exist. In the one case we open the abdomen; we penetrate the liver with the finger, or open its texture with the knife, severing its vessels; the blood wells up rapidly, several pounds may flow in a few minutes; engorgement seems to be present; and yet this happens when there is no congestion at all. In the other case, let all the great vessels be divided—let the liver remain in its natural situation, and let it be the last organ examined, and it will probably be found nearly bloodless; even its parenchyma may not indicate the previous congestion. Without regarding these circumstances, the former liver would be congested; the latter, bloodless or anemic.

COLD, alone, may perhaps remove morbid appearances, and

create mechanical congestions, by unequally condensing the solids and fluids of such parts as undergo refrigeration the most rapidly—congestions resembling morbid turgescency. Cold, acting on the superficial capillaries, and other vessels, may force the blood towards the centres, engorging the warmer, and more dilatable parts: even in the living body, cold, more particularly congelation, causes paleness or bloodlessness upon the surface, and of course sanguineous centralisation.

Difficulties, in morbid anatomy, result from our limited knowledge of the exact appearances of each structure, proper to the HEALTHY ANATOMY. Death, from almost any cause, whether from decapitation, hanging, drowning, asphyxia, or fire-arms, may change the healthy appearances, instantly, in many textures. The rarest dissections are those of persons, who have died from accidents, not connected with acute or chronic diseases. The natural vascularity of a part must be estimated, in order to judge whether there be an acquired or morbid increase of vessels: so of color, consistence, and magnitude.

In order to acquire just ideas of this branch of the inquiry, comparative anatomy is generally available. Some easy lessons may be had of the butcher, at the slaughter house, where different animals are killed, by different methods.

Over-nice distinctions which indicate no palpable differences, that millinary of morbid anatomy, retard and discourage the student.

For example, there has been much dispute about the precise color of the mucous tissue of the stomach. This organ is one of the most accessible, the easiest examined, one that has occupied beyond all others the attention of investigators; yet, there exists great difference of opinion, about the healthy appearance of its internal coat. "It has been described as being white, greyish-white, reddish, greyish approaching to yellow and red, straw-colored, &c. Billard, in whose opinion Dr. Hodgkin is inclined to place most confidence, states it to be *a dead milky white*. According to Buisson and Bichat,

the color is a deep red, and according to Sabatier and Habcot it is of a reddish purple and deep purple. Gavard, Boyer, Sœmmering, Chaussier, and Adelon, make it of variable shades between red and gray. Rosseau, who derived his opinion from the examination of the bodies of criminals dying by the executioner (by the guillotine we presume), states that the color of the gastro-intestinal canal is *white*, or rather faintly tinged with red. We are ourselves rather disposed to agree with H. Cloquet who describes the usual appearance of the membrane as being of a *reddish-white* and *mottled—comme marbrée*.”—(British and For. Med. Rev., April, 1841.)

The COLOR of the internal structures should be noted, soon after their exposure to the air. This is a matter of much importance, for in a few minutes after the removal of an organ from the body, it becomes red or roseate, owing not to disease, but probably to its imbibing oxygen gas. This acquired color is superficial, and by making a fresh incision into the solid viscera as the liver, lungs, spleen, brain, &c., some hours after exposure, the original color, as at death, will be observed without material alteration. After the frosts of October, 1841, this coloration appeared to take place with great celerity, and often it assumed a scarlet hue which might readily be mistaken for a morbid appearance, by one not duly considering the circumstance to which I allude.

Simple coloration, unaccompanied with structural changes, being so variable, is of small value, and is, at the same time, one of the principal sources of erroneous deduction in morbid anatomy. In not a few diseases, the lesions account for the cause of death, nearly as well as decapitation. It is better, in doubtful and unexplained cases, to acknowledge our ignorance at once, than indirectly to dodge the question, by referring it to slight discolorations, especially such as happen to the mucous tissues of the air-passages, stomach, &c., which, still more than the skin, are liable to be blanched, or spotted with reddish, purplish, and dark hues, from many different causes, besides the last agony. Seldom, if ever, do we see *vascular turgescence* or *redness* of the arachnoid, in the

most violent form of the disease called *arachnitis*, while nothing scarcely is more common than *opacity, thickening, serosity, sub-arachnoid* infiltrations, and especially fibrinous or lymph exudations: the latter product, Professor Gross says, "is invariably of inflammatory origin (without our being able to detect the *slightest redness, &c.*)—a law than which none is more satisfactorily established in pathological science." (Path. Anat. vol. i, p. 59.)

CADAVERIC COLORATION, is the source of innumerable errors in those dissections, where that convenient, theoretical, and summary word *inflammation*, is vaguely used and much patronised. This term is like a sieve for carrying water. It may be necessary, in therapeutics, as indicating a certain class of medicinal agents, but is not necessary in morbid descriptions, *mere descriptions*. In the dissection of those white, non-vascular, firm indurations, called scirrhus, I have had some experience, and still more in their treatment. In about one half of these degenerations of the mouth and neck of the womb, the recovery has been complete, by antiphlogistics, as absolute diet, position, local irritants, iodine, mercury and emaciating medicines, the residue ending in ulceration, and death. If the treatment furnish any guide, in judging what is, and what is not, inflammation, it would seem that this *white inflammation* offers an excellent type or starting point; the redness often found around white indurations may be accidental. But *whiteness, redness, blackness, &c.*, do not become important unless all the circumstances of the case be regarded. In acute fevers in this city, the intestines, particularly the cœcum, colon, and rectum, are often as *white* as the breast of a boiled chicken, or as prepared tripe; and still oftener *contracted* to a round firm cord, scarcely larger than the thumb of the subject, and for several feet, so completely closed that the French intestinal scissors cannot be introduced without much force; the whiteness and contraction being the only alterations of the parts. Blackness of the intestines may indicate mortification, or nothing morbid at all beyond mere *dyeing*, as if it were a piece of cloth; black

vomit filling the bowels will sometimes, in from ten to twenty hours after death, *dye* all the tissues of the bowels black. Blood, according to its accidental hues, will in like manner dye them red, claret, mahogany, &c., without any changes of consistence whatever.

MAMELONATION in its usual and most simple state, is a change, the pathological import of which is but little understood; though, as a matter of fact, it deserves to be noted. It consists of eminences much greater than those on the surface of the roughest orange, alternating with depressed lines upon the internal surface of the stomach, usually of a pale white color, though sometimes appearing like red granulations, at least such are its appearances in the victims of fever in this city. It seldom happens. Perhaps a kind of coagulating or constringing power in the gastric juice, or the spasmodic and irregular contractions of those strong, hair-like fibres and vessels, which compose the net work of the sub-mucous tissue, may give rise to this lesion, if such it may be called. Cold causes the skin to assume a slight mamelonation, called "goose-flesh;" alum, gall-nuts, &c., causes the mucous membrane of the mouth to contract and form irregular prominences, apparent fissures, &c. Simple mamelonation, without changes of color, cohesion, vascularity, firmness, &c., is, in morbid anatomy, probably far less important than some imagine.

The quantity of morbid fluids is often great in yellow fever, causing much distention of some organs. B——— C—— (Dissection XXXVIII), female, of medium size, had, five minutes after death, besides six or seven ounces of cerebral serosity and indications of copious hæmorrhages from the uterus and vagina, about thirty ounces of blood effused in the pleural cavities, sixteen ounces of blood in the large intestines, and fifty-six ounces of intensely colored, heavy black-vomit in the small intestines, in all, about one hundred and eight or nine ounces: this coloring matter, in a few hours (to say nothing of a day or two), would have spread obscurity over the morbid appearances of the surrounding textures.

COHESION, one of the most important and certain tests in morbid anatomy, becomes a fallacious guide, under some circumstances, chiefly from the effects of delay. If, for example, the muscles have lost their firmness and natural color and are becoming puffy, &c., what are we to expect but loss of cohesion in other textures, to say nothing of the action of the gastric juice upon the gastro-intestinal mucous tissue? The medico-legal testimony and pathological deductions, based on post-mortem examinations made many days after death, must in many cases be involved in great uncertainty. I may be pardoned for introducing here the following case as illustrative of the *progress of decomposition* in the various organs in this climate, inasmuch as it is interesting, I trust, in another aspect—showing that the stomach may be ruptured spontaneously without any previous indisposition.

It is proper to remark, in explanation of a circumstance alluded to in the following case, that while travellers facetiously call New Orleans, “the wet grave,” its cemeteries are really such, excepting those which are constructed with vaults, costing from sixty-five to one hundred and thirty dollars each; the other cemeteries are situated a mile or more from the river, at the termination of the inclined plane, looking towards the swamps, in a dead level, the bottom of the grave being at about the same height as the low-water mark of the river, which circumstance, in connexion with heavy rains and the impossibility of drainage, keeps the graves full of water, so that bailing out a grave is necessary just before inhumation; and even then the funeral service which says, “dust to dust, earth to earth,” sounds oddly, since the defunct is usually committed to the water. In the following case the weather, the position, &c., formed an exception, the bottom of the grave was made in firm, tenacious mud, and contained a stratum of water about two inches deep. Had this body been exposed to the air, instead of the humid grave, decomposition would have been greatly retarded. An opinion has prevailed, even in this city, that animal decomposition is unusually rapid in our climate. The contrary is the fact, unless humidity be

present. Humidity in this city is sometimes great and sudden, unconnected with rain, amounting almost to a shower within doors, owing to the fact, that the north and the south winds often meet suddenly face to face; a rapid condensation of moisture follows, without fogs however. But more generally dessication (from a powerful sun and brisk wind) prevails at least during autumn. We have extremes, but the drying property of our air is very remarkable, and to this cause I attribute the slowness of putrefaction which I have observed so often, even in hot weather. It appears that in some instances where moisture is excluded, the body does not putrefy at all. Several years since while engaged in collecting materials for the *grave-yard statistics of this city*, the sexton of the Catholic cemetery informed me that on opening a vault in the upper tier he found a body, long since entombed, completely dried or dessicated, without any signs of previous putrefaction: the hair and whiskers firm; the eyes and face though dried were of a natural appearance. Similar facts have been related by travellers in the east. "We observed, (says Captain Lyon in his travels in North Africa 1818-'19-'20,) many skeletons of animals which had died of fatigue on the desert, and occasionally the grave of some human being. All these bodies were so dried by the heat of the sun, that putrefaction appears not to have taken place after death. In recently expired animals, I could not perceive the slightest offensive smell; and in those long dead, the skin with the hair remained unbroken and perfect, though brittle." (Lyells' Geology, p. 119.)

Having been summoned by the coroner of the Parish of Jefferson, to make a post-mortem examination, before a jury of inquest, at the McDonald cemetery opposite New Orleans, a mile from the river, I proceeded to the place of disinterment, at 12 o'clock, M., October 1st, 1842; the weather being dry and moderately warm.

PREVIOUS HISTORY. H—— J——, a mulatto (whom I had attended some years before for gun-shot wound), aged thirty-five, resident in New Orleans for twenty years, stout, bony,

muscular, with but little adipose tissue, but always healthy—workman in the foundry at Gretna—at 8 o'clock, A. M., September 28th, 1842, after working as usual, ate his breakfast of beef-steak, potatoes, bread and coffee, abundantly—left the table, walked ten paces, sat down, placed his hand over his stomach, knelt down, said he was “devilish sick,” the only words he spoke; his pulse became imperceptible, his skin cold; he was dead, fifteen minutes after finishing his meal; was buried the same day; and, by the order of the Judge, was disinterred for inquest seventy-six hours after death. Before reaching the coffin, cadaveric gas became intolerably offensive. The coffin was large, strong and apparently tight; the corpse, which was much enveloped in cloths—the head in bandages—filled the entire coffin, except that part corresponding to the legs. The coffin contained about one gallon of liquid, supposed to be an exudation from the body, being less fluid than water, having an oily, bloody, and turbid appearance; some of it had leaked out.

Corpse swollen, puffy; universal gaseous inflation of the cutaneous, cellular, adipose and muscular tissues doubling the size of the body, not excepting the extremities; integuments of the face and head from two to three inches thick, lips, ears, and eyelids, four inches; the neck, three or four feet in circumference; the scrotum, nearly two; the penis, one; muscles, bloodless and softened; great abdominal convexity from gaseous distention; foam issuing from the mouth and nostrils.

Head: hair loose; pericranium and dura-mater non-adherent, without much loss of tenacity; arachnoid and pia mater softened; brain like molasses or pus in consistence, being of a dirty gray or white color, with sanguineous tints in dependent parts; this description applies to the upper portion of the spinal marrow; the vertebræ were separable by the hand alone.

Chest: lungs, cohesion moderately diminished, color, gray, with redness in dependent parts, being greatly collapsed, occupying about one-sixth of the cavities; mucous tissues of the air passages reddish; bloody effusion, mixed with serosity,

about four pounds; pericardium puffy; heart thin, flabby, pale, nearly white, totally empty (as were its great vessels), and though its muscular tissue was effervescing with minute air bubbles, it was free from elasticity, being only about one fourth of the usual size; aorta, pleuræ, &c., nearly natural.

Abdomen: intestines distended, pale, bloodless, not tearing without considerable force, being moderately softened; the mucous tissue pulpy, and free from arborisations, &c.; the bile had infiltrated the subjacent tissues; the gall bladder empty, its coats puffy from gas; the liver was nearly natural in cohesion, elasticity and color; the stomach, small and attenuated, was *ruptured* about four inches along its lesser curvature, it contained about a pint of semi-fluid food; about the same quantity had escaped through the orifice (which was somewhat irregular, though longitudinal), and lay on the left side of the spine near the diaphragm, resting on a clot of blood as large as the hand. Here the examination stopped; other organs not dissected.

A few weeks before this occurrence I met with a case of *rupture of the stomach* in the person of T—— L——, aged sixteen years. (Dissection LXXVII.)

I may be allowed to remark that I never had any personal experience of the *injurious effects of animal effluvia in dissection*, except in the above instance. I have known some, who, though good operators on the living, have become sick or faint from dissection of the dead, even when unattended with any strong odors. In the case of J——, just related, a depressing nausea was produced, somewhat like sea-sickness, which continued for twenty-four hours. Pain in the axilla, nocturnal fever, and tedious pustulations do arise from the smallest wound or scratch in dissection, the dangers of which, however, have been greatly exaggerated, if I might speak from what I have seen.

GASEOUS DISTENTION of the tissues, though generally the effect of incipient decomposition, is not always so. I have seen it in five minutes after deaths the most rapid in bodies that appeared as free from all the appearances of putrefaction

as if they had died from a ball through the brain. It appears in the sub-mucous tissue of the stomach, in the blood vessels of the brain, in the cellular tissue of the neck, and in the heart.

In pathological anatomy, still more than in geology, difficulties arise in the chronological classification of strata; primary, secondary, and recent morbid formations, being often mixed and confused, their *eras* are uncertain.

As in weights and measures, so in healthy and morbid anatomy, *standards* of comparison are desirable. In these dissections, I have often in the absence of any known standards, endeavored to introduce some, though not very precise. Thus, when I speak of the *tenacity* of the arachnoid and pia mater, I mean that they may be peeled from the hemisphere and its depression entire, or nearly so, and that a strip raised on the handle of a knife from one to two inches in breadth, will be strong enough generally to suspend the half or the whole brain without rupturing.

With respect to hypertrophy or enlargement of the organs, they are compared with recollections and with the best descriptions of their size in a healthy state; thus, it is said, their dimensions are augmented one-third, one-half, twice, &c. All this is very inexact; precision is impossible. In different individuals the organs differ in size, in the healthy state. But is not such a standard better than none?

With respect to several of the *hollow viscera*, particularly the stomach, considerable thickness and contraction, or thinness and distention, may exist without necessarily implying any morbid change. An empty stomach is generally very thick, its mucous surface wrinkled, and full of fold or plaits; on the contrary, the presence of much fluid is attended with attenuations of its coats. By inverting this organ, and filling it with air or water, its sub-mucous tissue may be infiltrated by pressure, so as to become one or two inches thick resembling ecchymosis, oedema, emphysema, &c. This tissue is the seat of those arborizations, which have been so often erroneously ascribed to the mucous membrane.

I have not seen in this membrane well-marked vascularity that is, a net work of continuous trunks and branches, as in the conjunctiva, serous membrane, and other tissues; when the sub-mucous tissue has suffered denudations from loss of its mucous membrane by ulceration, softening or otherwise, or when this latter is more or less transparent, arborizations may appear; they are in fact, often almost naked, surviving the wreck of the disorganized tissues to which they had belonged. However red, hard, and swollen the mucous membrane may be, by disintegrating it gradually by scraping, the blood appears in minute points or dots, widening as you progress outwardly, appearing like cones with their apices pointing towards the centre of the stomach, their bases resting in the outer half of the sub-mucous tissue, where a layer of vascularity spreads over the inner surface of the muscular coat in acute hyperæmias of this organ.

It is a very great error, in a scientific point of view, whether in public or private practice, to *pick* or *select* subjects for dissection, on account of something extraordinary in the previous history or in the external post-mortem anatomy, for by so doing we keep among the exceptions, not the general rules; we study monstrosities, not the common run of cases. Few, indeed, can expect out of the irregular to establish its regular laws, as St. Hilaire has done in monstrosity itself.

As a modifier of post-mortem appearances, *treatment* is, doubtless, a very important subject of investigation; a treatment essentially wrong, aggravates, seldom creates the morbid appearances, while the proper treatment lessens their natural tendency more or less. For example, whatever good or bad effects quinine may have in yellow fever and other fevers, given in doses ranging from one grain to two drachms, it appears not to create certain morbid appearances, which some ascribe to it instead of the malady. Serosity of the brain, opacity and tenacity of the arachnoid—vascularity, thickness, infiltration, and firmness of the pia mater, acute hyperæmia of the stomach, &c., are not attributable to that

mode of treatment. The candid Eclectic will need humility and patience when he comes to compare and count organs with the Quinianian, the Sanguinarian, the Inertiarian, the Hydrargian, the Non-medicationist of the *Method Expéctante*, and other exclusives. In these dissections, to which I have so often alluded, nearly *every mode of treatment is represented and reflected*: in some, *no treatment*, or one wholly palliative was adopted. When a physician, wedded to a particular school of practice, “who has made up and expressed an opinion” in regard to his late, but now defunct patient, comes to the examination and bears testimony against himself, he is doing more than any court in christendom exacts under oath. Rochefoucault says, “we need not be much concerned about such faults as we have the courage to own.” A man who dissects none but those who have died under his own peculiar treatment, to say nothing of the biases of pride and theory, must of necessity take a one-sided view, calculated to foster that narrow Idealism which is, in medicine at least, a concentrated impersonation of all that is Real, since it opens the veins, blackens the body with leeches, marches into our vitals with the strongest preparations, compatible and incompatible, that chemistry can produce.

Prof. GRAVES. of Dublin, strongly insists upon the necessity of morbid anatomy to correct these narrow views of the mere symptom-hunters. “Medicine has followed medicine, each symptom has been the object of attack, until death approaches with accelerated step, and charitably closes a scene distressing to humanity and disgraceful to the cause—I was going to say—of science; but who will give so ennobling a name to this pseudo-practical knowledge—this worse than absolute ignorance. I am not combating phantoms; I do not Quixote like contend with imaginary giants; no, what I have described exists; the picture I have drawn has many an original.”

THEORETICAL words lead to latitudinarian and erroneous results, and should be excluded from dissections altogether.

The physical appearances alone must be given—accurate descriptions, as in the science of geography, the morbid and healthy geography of organs.

I have, in these descriptions, avoided the word *inflammation*, a word that even now is so vaguely applied, as to include the most opposite appearances in color, consistency and size. When an organ is *blanched, reddened, thickened, thinned, softened, indurated, brittle, tenacious, tumefied, ulcerated, puffy, excavated, infiltrated, perforated, enlarged, diminished or otherwise altered*, the fact is so stated, together with all its accompanying *physical characteristics*. This mode, though not very summary and compendious, is in conformity with the dictates of common sense. Let not the matters of fact be confounded with the matters of opinion.

Let us illustrate this matter:—S—— B. E——, of Massachusetts, aged 19, who died of yellow fever, August 5th, 1842, the first fatal case in the epidemic of the season, and who was dissected seventy-five minutes afterwards (by Drs. Wederstrandt, Fenner, Slade, Saunders, and myself—Dissection LXXIII), presented the following appearances of the mucous membrane of the stomach:—"One-third of the mucous membrane, and of the sub-mucous tissue next to the cardiac orifice, were of a deep claret color; when scraped, innumerable small bloody points appeared, without arborizations; the entire membrane having a natural consistence, thickness, and tenacity, peeling in strips an inch long, leaving the muscular coat natural (dull white), except a reddish spot, corresponding to a button-shaped clot of blood, as large as a dime, which formed a dense infiltration of the sub-mucous tissue, with the filaments of which it was intersected." Now, with the exception of this ecchymosed spot, and the intense coloration, all the coats were healthy, free from thickening, puffiness, softening, ulceration, induration, or other departure from the natural state. Here (omitting the button-shaped extravasation, often met with,) we have one element of inflammation. But, is *color, per se*, an indubitable proof of the presence of inflammation, in the absence

of all structural alterations whatever? One pathologist may call the above appearance inflammation of the stomach; another may deny this as positively, or doubt as to its pathological character. What must an honest dissector do in the premises? Let him describe the *physical appearances* truly; instead of deciding the pathological question, by writing down the word inflammation. Stronger cases might be multiplied, showing that slate-color and even deep black (sometimes in the form of a very fine, dust-like, powdered charcoal imbedded in the mucous tissue)—arterial, venous, claret, mahogany and other colors, exist independent of any appreciable changes of structure.

The word *congestion*, in its application to the brain, is very often misunderstood, so as to imply a physical impossibility. If the brain when the circulation is natural, be a plenum, or nearly so, as it is admitted to be, and is like water, incompressible, then general congestion, from an absolute augmentation of blood in the cranial cavity, cannot happen unless the bones be separated: the relative situation of the blood changes, not its quantity. The meningeal artery is by a blow ruptured—a broad clot extends over a considerable portion of the brain; a blood vessel spontaneously ruptures in the substance of the brain (apoplexy), forming an irregular coagulum as large as the fist; or, serosity accumulates to the extent of half a pound: but such accumulations in one part must exclude or displace just as much blood from entering the brain to other parts during life. I have seen more than a hundred instances of serosity of the brain, with vascularity of the pia mater; but if the serosity be great, usually the blood vessels are collapsed. So of that doubtful lesion called *hypertrophy of the brain*: if any real enlargement happen, it is probably at the expense of the general circulation, by excluding from the arteries and veins, great and small, an equal quantity of blood.

Many of the French pathologists have adopted a *nomenclature*, in many instances very convenient, and expressive of general conditions or states of morbid alteration; not much is gained, however, by adopting such words as *acute hyperæ-*

mia, chronic hyperæmia, as substitutes for *acute* and *chronic inflammation*. In order to avoid endless repetitions, I have been compelled to write the word *healthy or natural*, immediately after the organ mentioned, without describing the characteristics of healthy anatomy, particularly in relation to some of the less important structures, as the lymphatics, pancreas, kidneys, bladder, &c., though *in all doubtful cases the description is given*.*

The average TIME required to make a dissection with care, including the time for pencil notes, and then copying, is about four hours. It is true that in the ordinary mode of proceeding, the stomach, &c., may be seen in as many minutes. But it is quite a different affair, to examine, to remove, and then re-examine each organ, opening every inch of the bowels, washing, macerating, holding up in the sun every part, &c. Louis says, "practice in order to collect observations, is a *trade*, and like all other trades must be learned, and cannot be divined." A *theoretical abandon* is proper in making a dissection; after it has been faithfully recorded, let it be as completely forgotten as possible while making the next.

The laborious, and to some, repulsive character of these necessary studies, should not deter the conscientious student; for though he should not increase his gold thereby, yet he will *deserve it honestly*; the difficulties incidental to these pursuits, in thinly inhabited country situations are almost insurmountable, and therefore a resort to cities for this purpose is desirable before settling down for life. For this purpose *New Orleans* is unsurpassed by any city in the Union. Here, there is no prejudice against dissections. Her great Charity Hospital offers practical facilities on the largest scale. Every young physician in the south and west, may also furnish himself (without cost) all necessary anatomical preparations.

The DEAD-HOUSE, situated in the rear of the Charity Hos-

* If the average number of healthy organs in each case of dissection amount to twenty, then two hundred cases will amount to four thousand instances, requiring as many special descriptions, unless we adopt the word *healthy or natural*, in order to avoid repetitions.

pital, in a noiseless and unfrequented spot, and consequently favorable for post-mortem investigations, is divided into two apartments, called the reception and the dissecting rooms. In the former the corpse is deposited on a stone floor, by two men whose business it is to coffin the dead. The bodies of males are covered with a sheet only, which is removed before the corpse is placed in the coffin; females are always furnished with garments in which they are buried. If, as rarely happens, the friends of the deceased wish to bury the body, a ticket is placed over its breast by order of the clerk of the Hospital. The dissecting room is ventilated, sky-lighted, and supplied with tables and water. How different from the agitation, noise, confusion, and hurry, incidental to post-mortem examinations in private practice! Here, the operator is not dismayed by the fear that each sound of the saw or hammer, will be echoed back in a sob or a shriek by some relative of the dead, in the adjoining room.

In the dead-house, Europe, Asia, Africa, and America are all represented. The Caucasian or European face, fair and symmetrical, is by far the most common; the Irish, German, French and English greatly predominating, the Mongolian or olive Asiatic, and the African, being most infrequent.

Here, in yellow-fever seasons, the mountaineer of Switzerland, the low-lander of Holland, the Swede from the icy circle, the Mexican from the tropics, the New Englander from his blue hills, and the country Creole from his black swamps, the virgin just arrived at womanhood, and the matron who has not yet passed the meridian of life, lie, side by side, with the saddest features, as if reproaching us for not saving them from an untimely grave. In this contemplation of the dead body upon a large scale, where many, the young, the robust—victims of a single night—lie crowded together, one naturally is reminded of what Molière makes Beraldo, in the *Maladie Imaginaire*, say: “I do not know a more pleasant piece of mummery, or any thing more ridiculous than for one man to undertake to cure another.”

The dead-house, it must be confessed, produces a little skep-

ticism, but it is a wholesome skepticism when making an exploration into the realms of death; even systematic anatomy will abate something of its pretensions on the score of oracularity. The observer finds *irregularities* of structure accumulating on his hands, with surprise, unless he belong to that class, that nothing medical can surprise. One of the greatest anatomists denies that the testicle is ever missing or single, yet I have met with such a case; also a man with organs of generation unmarked with any sign of puberty, being in the infant state of development; a woman with one kidney; in another it was wrong side up; the stomach adherent to the uterus, and irregularities too numerous to mention. One irregularity, referable to morbid anatomy, I will here mention at the risk of being suspected of leaning towards the marvellous. Depending on memory alone (not having leisure at this moment to make an exact estimate), I suppose that about ten per centum of those dying of fevers in this city, have from one to four complete *intus-susceptions* in the small intestines, sometimes six inches in extent, at least such has been one of the results of my observations.

I append the following analysis of the *color of the liver* in yellow-fever, not that it is equal to many other appearances of this and other organs, in pathological importance, but, because it happens to be the most convenient. For though I am collecting facts on fevers and bowel-complaints, and have copied many into the anatomical portion, I have not analysed them with precision. However, I am sure there is no material error in this enumeration. The terms and comparisons used are more or less varied in the original.

Yellow, as orange, lemon, straw, brass, gingerbread,	
cork, - - - - -	54
Yellow and milky, - - - - -	3
Nutmeg and straw-yellow, - - - - -	4
Brown and yellow, - - - - -	2
Brown and yellow, with lines or streaks, - - - - -	2
Yellow, milky, and mahogany, with lines, - - - - -	1
Yellow and healthy, mixed, - - - - -	1

Bronze and reddish, - - - - -	4
Pale brown and mahogany, - - - - -	9
Purplish and brown, - - - - -	1
Mahogany and white, - - - - -	3
Chocolate, - - - - -	4
Flaxseed, - - - - -	5
Dark, - - - - -	1
Reddish, brown (nearly healthy), - - - - -	1
Black and brown, - - - - -	2
Dark, mustard, - - - - -	1
Black and purple, - - - - -	1
Greenish and chocolate, - - - - -	1
Dark and greenish (stratified), - - - - -	2
Lead-color, - - - - -	1
Purple and white, - - - - -	1
Accidental omissions (in making notes), - - -	4
Healthy or natural (that is, brown, with slight reddish tint externally, and a yellowish tint in- ternally), - - - - -	6
Total examinations (yellow fever),	<hr/> 114* <hr/>

The liver presents many other points for analysis, as to size, cohesion, membranes, anæmia, hyperæmia, &c.; also, oyster-like degenerations of the gall-bladder, effusions of albumen into that cavity, and other important alterations.

* These researches, so far as mere *color* of the liver is concerned, agree in many instances, with those of Louis on the yellow fever of Gibraltar, in 1828; but more generally they are very dissimilar, especially upon the brain, hæmorrhages, &c., a fact admitting of satisfactory explanation, without calling in question the accuracy of the commission (of which Louis was one), sent by the French Government to Gibraltar, in 1828, for the purpose of investigating this malady. Their post-mortem examinations were, I believe, nearly all made in the winter, when the epidemic had declined, or nearly so. Except in a single case, they did not, personally, observe the ante-mortem or previous history, and, among their 23 or 24 cases they mention a number as not being yellow fever, as the 13th, 15th, 18th and 24th, and, perhaps, some others. (I quote from memory.) Besides, the yellow fever of Gibraltar and that of New Orleans may differ from each other.

I have not, in this paper, even glanced at the morbid appearances of the FLUIDS. The stupendous conclusions at which certain pathologists seem to have suddenly arrived, appear defective in one essential matter, *evidence, facts*. Even oxygenation, carbonization, de-fibrination, super-fibrination, &c., are better known than appreciated in morbid anatomy. But the new *chemical metaphysics* by which the “alkaloids of opium,” “quinine,” &c., become chemically combined or converted, or transformed into brain and nervous matter, and then cure chemically by diminishing oxygen, &c., are quite too transcendental for a poor dissector, though well enough adapted to flourish in the realms of German idealism, where the genuine *Monades* are said to exist, out of which it is gravely declared a god will some day be created, if one do not exist already.

With the words, black blood! carbonized blood! putrescent blood! still ringing in our ears, we begin to hear of blood too rich, too fibrinous, over charged with oxygen—(the sensible appearances lean a little towards the latter)—but the easy mode of setting aside the utility of dissections, by referring diseases to the nervous system unaccompanied with any alterations of structure, is an explanation requiring explanation: and so of the fluids. I would like to see the humoralist that can distinguish, by sensible appearances, the blood of a yellow-fever patient from that of the most healthy man; yet they are not always alike.

January, 1843.

Bibliographical Notices.

ART. II.—*A Therapeutical arrangement of the Materia Medica; or the Materia Medica arranged upon Physiological Principles, and in the order of the general practical value which remedial agents hold under their several denominations, and in conformity with the Physiological doctrines set forth in the Medical and Physiological Commentaries.* By MARTYN PAINE, M. D., A. M., author of the Commentaries, and of the Letters on the *Cholera Asphyxia* of New York, and Professor of the Institutes of Medicine and Materia Medica in the University of New York. New York: J. & H. G. Langley, 57 Chatham Street, 1842, p. 271 duodecimo.

This little volume presents as fair a claim to the motto, "*multum in parvo*," as any production of the American press, or indeed of any press, that has fallen under our notice. And it contains, for its size, not only a *large amount* of matter, but matter of a practical and valuable character. Were we inclined to appear, on the occasion, either classical or poetical, or both at once, we might correctly enough apply to it the distich of the great and accomplished Mantuan, in his poem on bees;

"In tenui labor; at tenuis non gloria, si quem
Numina læva sinunt auditque vocatus Apollo."

The title-page itself of the work so far discloses its character and design, that our readers need but little more for the attainment of a competent knowledge of them. From that page they will at once perceive, that Professor Paine is a thorough-bred and uncompromising vitalist. Hence they cannot

fail also to learn from it that he considers the science of medicine as consisting in a true and complete exposition of the laws of living organized matter; and the practice of medicine in a correct application of those laws to the treatment of diseases—the means of treating them being derived from *Materia Medica*. And they will further be made sensible, that, as a writer and teacher, he denies the existence of any identity, connexion, or even close analogy between the philosophy of living and the philosophy of dead matter. In more express and definite terms, they will thus learn, that he regards physiology, in its principles and laws and their mode of action, as essentially different from those of either chemistry or the science of mechanics; and as being an exposition of functions exclusively *vital*.

Still however, though so much, respecting the character and design of the volume may be ascertained from the title-page, we think it best to *lay* before our readers a brief extract from its preface, in more definite explanation of them.

“These purposes” (those of the work we are considering) are mainly:

“1. To arrange the *Materia Medica* upon intelligible, physiological, and therapeutical principles.

“2. To indicate the relative therapeutic value of the various articles, under their different denominations, by arranging them in the order of their value.

“3. To give to the student a comprehensive and ready view of the merits of the various articles composing the *Materia Medica*, and of their relations to each other *physiologically*.

“4. To supply a convenient means of graduating the doses of medicine.”

From that portion of the work which is headed “General principles,” we shall also make a brief extract, our object in doing which will presently appear.

“1. All remedies operate upon the same principle as *morbific agents*, and all become morbid when injudiciously applied. Applied to healthy systems, they alter the vital properties and actions so as to constitute disease. * * * “Medi-

cines" says Linnæus, "differ from poisons, not in their nature, but in their doses." And so Pliny; "*ubi virus, ibi virtus*."

"3. All curative agents operate upon the *morbid properties*, either directly or indirectly through sympathy, and produce their salutary results, by so altering the morbid properties, as to enable them to take on their natural tendency to a state of health."

These three last quoted paragraphs show our author to be a liberal, bold, and independent thinker; and we fully concur with him in the sentiments they express. *Medicine* and *poison* are but different names for the same article, according to the quantities and modes *in* which, and the circumstances *under* which it is administered. And all remedies which actually change disease are necessarily *alteratives*, from the nature of the case, and the meaning of the term.

As relates however to the third paragraph, our coincidence in opinion with the Professor is not quite so entire. At least we do not like the expression "operate on properties" whether they are morbid or healthy; because we think it calculated to make an erroneous impression. Agents do not act immediately on "properties," which have no existence apart from the substances to which they belong. They are but the attributes, signs, or shadows of such substances. To operate on *them* therefore is tantamount to operating on a non-entity. The operation is *on* the substance and the change produced is *in* the substance; and the properties of course experience also a corresponding change; because as is the substance, so necessarily are they. This is true of all properties, whether the substances they belong to be living matter or dead matter.

In illustration and proof of this, let us consider for a moment the properties of elasticity and weight. We cannot operate *immediately* on them. To change them, we must change the substances to which they belong. The production of an alteration in properties then is of necessity an indirect process. The reason is plain. It must reach them through the substances to which they appertain.

We should not have noticed this error in *mere words*, had

they been the words of an ordinary writer; or had they been employed but once even by Professor Paine. In either case we might have regarded them as slips of the pen, and allowed them to pass without animadversion. But the Professor is able in intellect, and distinguished and influential as a writer and teacher, and has repeatedly used them in the course of his work. His errors therefore, whether in words or thoughts, are of bad example, and dangerous, because they lead weaker minds astray. Hence their rectification is necessary and important.

Professor Paine arranges the articles of *Materia Medica* under twelve heads, which he denominates and classes in the following order, and under the names attached to them.

“1. Antiphlogistics. 2. Permanent Tonics. 3. Diffusible Stimulants. 4. Cerebro-Spinants, or Nervous Agents. 5. Astringents. 6. Uterine Agents. 7. Urinary Agents. 8. Anthelmintics. 9. Errhines. 10. Chemical Agents. 11. Diet and Regimen, in a general sense.”

This arrangement (and we presume not to say that it can well be improved) does not amount to a complete execution of our author's plan, already communicated in his own words. It does not we mean, in every particular, strictly conform to physiological requirement. This is the case with the class of

“Tonics,” that term not being properly applicable to *living* matter in any condition it can be made to assume, but to dead matter in a state of *tension*. This may be illustrated by the condition of well prepared bows, and by that of drums, harps, violins, and other instruments of music. These several instruments must be in a “tonic,” that is a *tense* condition, when well fitted for the purposes for which they are designed—the first to lanch the arrow, and the others to send forth well-conditioned musical sounds. As regards the condition of the bow and bow-string, the cords of the harp and violin, and the head of the well-braced drum, nothing at all analogous to it is produced by the action of “Tonics” on any portion of the human body. In the condition of a healthy

and vigorous muscle, nerve or gland, there is no more of *tone* or *tension*, in the true sense of the terms, than there is in the condition of a deranged nerve or muscle. The word *tone* belongs to *mechanical*, not to *vital* philosophy. Still, however, provided we divest it entirely of its literal, mechanical, and coarse meaning, and so interpret it as to signify soundness and excellency of condition, it *may*, without communicating such mechanical views as are highly injurious, be applied to vital matter. And we confess our inability to substitute for it a better term.

We fully however concur with our author, that what are called "*tonic*" remedies are greatly overrated, as relates to their usefulness. In many cases, especially of chronic diseases, they *may*, and we doubt not *do*, as *alteratives*, prove serviceable. But, from the injudicious manner, in which they are exhibited, we have long been convinced that, in convalescence from *acute* disease, they do an immensity of mischief. Indeed, in such cases, provided the complaint be sufficiently deracinated, by antecedent means, they are wholly unnecessary; and usually injurious. When, by a judicious treatment, an acute disease is brought down to the proper point, *nature*, by her recuperative energies, most safely and effectually completes the cure. The best tonic under those circumstances is a well directed regimen and form of diet. Every thing beyond that embarrasses nature, and impedes her in her efforts to remove the complaint. Nor is this view of the matter at all inconsistent with the fact, that tonics are efficaciously employed in the treatment of intermitting and remitting fever. That, even in those complaints however, tonics, unskilfully administered, are productive of much mischief, is a circumstance familiar to every experienced practitioner of medicine.

To the class-term "*Astringents*" similar remarks are correctly applicable. It is not, in its import, strictly physiological. True; the articles thus denominated produce an astringent effect on the lips, tongue, and fauces of those who swallow them. But there the astringent stops. Though the func-

tions of the system may be affected by the article, the affection is alterative, not astringent.

To the class-term "Anthelmintics" also exception may be taken on the same ground. It bears no direct relation to physiology—certainly none to the physiology of man, whatever may be its relation to that of other animals. It signifies articles *deleterious to worms*, and nothing more. Of the effect of those articles on the human system it is in no way expressive.

Let it be distinctly understood however, that these animadversions on some of his terms are not to be construed into a sentiment of disapproval toward Professor Paine, as a writer. Far from it. We do not remember any terms more suitable that might be offered as substitutes for those to which we have excepted. The defect in the class-names arises much more from the intractable nature of the case than from any fault in our author. The result is therefore matter of *regret*, because it *cannot* be amended, rather than of *blame*, because it *is not*.

With the Professor, in his views respecting "Cold" we cannot concur. He arranges and treats the article as a *direct sedative*. We, on the contrary, regard it as a *direct stimulant* and an *indirect sedative*. To the *nerves* it is not only a direct, but also a very *powerful* stimulant. It may be made to produce keen and intensely painful sensations—a result which cannot possibly be the product of a sedative.

Nor is cold a stimulant to the nervous tissue alone. It also acts most powerfully as such on the vascular system. When carried to a sufficient extent, it not only burns, but actually *blisters*. A piece of frozen quicksilver received into the hand burns and blisters like red-hot iron—an effect totally foreign from the influence of a sedative.

Frozen quicksilver and red-hot iron however, although they produce the same effect on the hand, do so in modes the very reverse of each other. The iron burns and blisters by pouring caloric superabundantly *into* the hand; the quicksilver by drawing caloric superabundantly *out of it*. In doing this it

brings the caloric, in a large amount, to a *focal point*, in consequence of which it acts like the solar rays, brought to a point, by a powerful burning lens.

Such are our views respecting the mode of operation of frozen quicksilver. And whether they are right or wrong, the fact they relate to is certain. The quicksilver which is intensely cold, excites a blister. But this it could not do, were it not a stimulant.

Cold is an antiphlogistic remedy, because it is an *evacuant*. And, so far as they are evacuants, all medicinal substances are antiphlogistics—as necessarily and essentially so, as blood-letting itself—though not in an equal degree.

Blood-letting alone excepted, all evacuations from the body are the offspring of secretion. Except the fæcal discharge, evacuation is but the discharge of secreted matter.

If this be true (as it unquestionably is) secretion is nature's chief mode of removing inflammatory affections. Thus the secretion and evacuation of bile cure hepatitis. The secretion and discharge of mucus aid in the removal of the several kinds of thoracic and pulmonary inflammation. A superabundant secretion and evacuation of saliva take down inflammation of the salivary glands. A copious secretion and discharge of urine aid in the cure of nephritis. The secretion and evacuation of pus contribute to the cure of the inflammation and congestion attendant on abscesses. And the secretion and discharge of perspirable matter aid in the removal of every affection to which man is subject. To the cure of all *febrile* affections they are indispensable.

From these considerations we have long been of opinion that there is just ground for the formation of an *order* at least, if not a *class* of remedies, under the denomination of SECRETORIES. And it would be an extensive and important one. For we venture to say that every remedy, which contributes to the cure of a general disease, does so, to no small extent, by throwing into natural and healthy action some of

the secreting organs of the body. Hence arises what is denominated, by most of the ancient medical writers, and by not a few of the modern ones, the *critical discharge*. And though the regular occurrence of such discharge is even tauntingly discredited, by many physicians of the present day, it is notwithstanding true. The evacuation comes most frequently from the liver and alimentary canal, the mucous lining of the trachea and lungs, the kidneys, or the *skin*. But no matter whence it comes. Its existence is certain. And when of a local character, as it often is, it proceeds from the organ, or its neighborhood, where the deepest congestion exists; and it relieves or removes that congestion.

The critical discharge is the product of nature; not of medicine. Nor does the good it effects arise from, or depend on, either its quantity, its kind, or its quality—nor from all these attributes united. It is to be regarded but as indicative of good, as evidence we mean that the course of action in the system of the sick is changed. And that change of direction is from *centripetal* to *centrifugal*—a change which is always salutary and of good promise. In febrile complaints the course of action is from without to within; and usually secretion of every description is restricted. And when the action changes its direction, from within to without, the secreting organs are thrown into operation again; and the result of that change is the restoration of health. But we can pursue this desultory notice no farther. In a few general and brief remarks, therefore, we shall bring it to a close.

The volume we have been considering, though small, exhibits notwithstanding a large amount of acquired knowledge, and no small degree of strong, independent, and well matured thought. Its arrangement, and the peculiar tenor of its doctrines and directions, are entitled to our entire and decided approval. We regard it, however, as little else than a syllabus or text-book for Professor Paine's course of lectures on *Materia Medica*. And, as such, we deem it peculiarly valuable to the pupils to whom those lectures are de-

livered. To them, during their pupilage, it will prove a highly convenient and useful companion in the Professor's class-room, as well as in their own studies, and even when subsequently engaged in professional practice, a ready and abundant remembrancer of what they have already learned. Nor, limited as the work is on every topic, will even those, who have not attended the lectures of its author, fail to derive from a careful perusal of it many important and some new philosophical views of *Materia Medica*. In these respects, therefore, the volume is cordially recommended to public attention.

C. C.

ART. III.—*The Diseases of Females: including those of Pregnancy and Childbed*.—By FLEETWOOD CHURCHILL, M. D., author of the “*Theory and Practice of Midwifery*,” Licentiate of the King and Queen's College of Physicians in Ireland, &c. &c. Second American edition. *With notes*, by ROBERT M. HUSTON, M. D., Professor of *Materia Medica* and General Therapeutics, &c. &c. 1 vol., 8vo., pp. 575. Philadelphia, Lea & Blanchard, 1843.

The two parts of which this volume is composed were originally published separately, that “*On the Diseases of Females*” first, followed after an interval by the “*Diseases incident to Pregnancy and Childbed*.” They are very properly combined in the present edition, and constitute by far the most complete and systematic work on the subject that we know. Both are compilations for the most part, and do not claim to be any thing more. The author has intended to make the work acceptable both to the junior and senior student; to this end, to use his own language, “it has been arranged, in the present volume, that the *text* shall contain an ample outline of the history, pathology, symptoms and treatment of the diseases, without any detail of controversies or conflicting opinions, which are given in full in the *notes* appended to each page; so that the junior student, by confining his attention to the text, may acquire

elementary information, which may be subsequently extended by consulting the notes and references.’’

The notes of the American editor are not very numerous, but pertinent, and we would add *judicious*, if we had not such a horror of the word. C.

ART. IV.—*A System of Anatomy for the use of Students of Medicine*. By CASPAR WISTAR, M. D., late Professor of Anatomy in the University of Pennsylvania. *With notes and additions*. By WILLIAM E. HORNER, M. D., Professor of Anatomy in the University of Pennsylvania. Eighth edition. *Entirely remodelled, and Illustrated by more than two hundred engravings*. By J. PANCOAST, M. D., Professor of General, Descriptive and Surgical Anatomy in Jefferson Medical College, etc. 2 vols., 8vo., pp. 538, 622. Philadelphia: Thomas, Cowperthwait & Co.; 1842.

Dr. Wistar's Anatomy has always been a favorite with students, and has accordingly passed through numerous editions. Indeed it has been *worked over* so often, that we can scarcely recognize it as the book with which we began our professional studies; even at that time it had been more or less changed by editors.

Professor Pancoast has retained the matter introduced by the former editor, Professor Horner, to which he has added a large amount of new matter, compiled from various sources, chiefly in relation to general and microscopic anatomy, the latter of which has been for some time and is now attracting so much attention. The work is fully brought up to the existing state of the science. It is embellished by the introduction of colored copperplates, eight in number, from Bell, and upwards of two hundred wood-cuts, selected from various authors. The latter are executed in superior style, as are all other portions of the work. In truth, of the many reprints that have come under our notice, this is by far the most beautiful in appearance. It cannot fail we should think to be received with equal favor as the former editions. C.

Selections from American and Foreign Journals.

On a Variety of False Aneurism. By ROBERT LISTON, F. R. S. Read to the Royal Medical Chirurgical Society, March, 1842.—Mr. Liston having stated, in his introductory observations, that he has met with a remarkable instance of disease, and that much benefit is likely to result from the detail of unsuccessful cases, narrates the case, first published in *The Lancet*, of which the following is a summary:

“A boy, nine years of age, about two months back, after an attack of cough and fever, became the subject of a swelling below the right ear, which was fomented and poulticed. The tumour slowly increased, but a few days before his admission into the hospital it began to progress rapidly. By projecting into the fauces it impeded respiration and deglutition, and it pointed near to the posterior border of the sterno-mastoid muscle. An obscure fluctuation was perceived by the touch, and some degree of pulsation in the course of the carotid artery.”

Let the unprejudiced reader review this evidence, and state the nature of the case from the symptoms. Would he believe it to be one of aneurism? We ought not to credit that he did, were he to answer in the affirmative. Does he recollect the rarity of aneurism in a child? Did he ever hear of carotid aneurism in a child? Does it accord with the history of aneurism, that aneurism should appear and become developed, almost to bursting in two months? It is not usual to find the artery, in a case of true aneurism, passing over the superficial aspect of the tumour. The reverse of that is always the fact. Moreover, is it likely that an aneurism of the common carotid would acuminate behind the posterior border of the sterno-mastoid muscle? Every well educated surgeon must reply in the negative.

Mr. Liston regarded this tumour as an abscess, and intro-

duced into it a bistoury, when out spurted a jet of arterial blood. The opening was secured, and on the following day the carotid artery was tied. In other words that treatment was adopted which would have been followed had the true nature of the tumour been detected at first. On the thirteenth day after the operation, secondary hæmorrhage from the seat of the ligature ensued. This was repeated on the fifteenth and sixteenth, and on the latter day the boy died. This treatment was accordant with sound practical surgery; and, now, what was the result of the post-mortem examination? A verification of the diagnosis of Mr. Liston. There was no disease or dilatation of the arteries, but on the posterior aspect of the common carotid, just at its bifurcation, a circular aperture was found, communicating with a cyst of condensed cellular tissue, lined by a pyogenic membrane, identical with the ordinary structure of the cyst of an abscess. The coats of the artery were seen to terminate abruptly at the edge of the opening, and there was no coagulum in the sac. This certainly was not a case of ordinary aneurism, but an instance of a rare surgical affection, an abscess communicating by ulceration with an artery, and thus giving rise to a "variety of false aneurism." The abscess had formed behind the artery, raising the latter from its bed, and separating its connections, so as to deprive it of its share of nutrient vessels. In this state of the vessel ulceration was a natural consequence; an aperture was formed, and the cyst of the abscess, previously small, became rapidly distended. We do not dwell on any question relative to the non-appearance of pus, either in the jet or after death. Who could distinguish pus, probably a small quantity, in a jet of arterial blood, or in arterial blood occupying a cyst of large size?

Having carried the matter to this point of the inquiry, we express here our opinion that Mr. Liston has conferred a benefit on medical science by recording the history of this variety. The paper is accompanied by eight cases which Mr. Liston considers to be of an analogous kind, and as proving the liability of the human system to such occurrences, and awakening attention to this additional means of forming a perfect diagnosis under similar circumstances, leading to the most judicious mode of treatment.

The first of the cases appended occurred to Dr. Craigie. It consisted in an extensive abscess of the tonsil, running down the sheath of the carotid vessels, and communicating with the common carotid, close to its bifurcation.

In the third case the femoral artery was opened, by slough-

ing, into a deep-seated abscess. The fourth case fell under the observation of Sir Astley Cooper.

In the fifth case, recorded by Mr. Syme, the affected artery was the popliteal. In the sixth, Mr. Gulliver's case, the carotid opened into a pharyngeal abscess. In the seventh, Mr. Fergusson's, the lingual artery communicated with an abscess in the neck; and in the eighth the opening existed in the arch of the aorta. The latter case is narrated by Breschet, and evinces much judgment and philosophy in its details.

“‘It seems to prove,’ says the writer, ‘that medical science is thickly studded with difficulties, both as relates to diagnosis and treatment. It is to be remarked that sanguineous tumours, communicating, by a very small opening, with the interior of an artery, evince no pulsations in the early periods of the disease, when placed deeply among the tissues; and that, even in the latter stages, the movement is less a pulsation than a vibration, or trembling. This fact is deserving of attention, inasmuch as it may be the means of enabling surgeons to judge, *a priori*, whether the disease is a sanguineous tumour, produced by the dilatation of an artery, or by the *erosion* of a part of the parietes of the arterial canal.’ ”—*Lond. Lancet*.

A Submarine Thermometer.—This is a French invention of the celebrated Mons. Clement, which has been tried lately in England in presence of the Lords of the Admiralty, on board the Lightning (steam vessel) Lieutenant Commander G. Snell. In relation to this new invention, we find the following in a late London paper.

It appears from the thermometrical observations of many scientific navigators, that in seas of unfathomable depth the water is not so cold as over the banks, and that over banks near the shore it is less cold than over those at a greater distance, but colder than in the sea. In experiments which have been made on the coast of France with this submarine thermometer results have been obtained which fully establish the great service which this instrument may render to navigation, by furnishing a sure and constant indication of all sudden changes from deep to shallow water. It is evident also that it will serve to point out the proximity of vessels to icebergs which at certain seasons of the year render the navigation of the Atlantic attended with danger. This test could not, of course, be made in the experiments with the Lightning, but the other important qualities are correctly ascertained. Clem-

ent's thermometer is kept constantly under water at the same depth, and indicates the different temperatures of the water by means of a dial placed on the deck of the vessel, and always open to examination. The immediate action is communicated by wheels, the working of which turns two hands upon the dial, the one marking the single degrees, and the other the tens. The whole is enclosed in a tube, and attached to the side of the vessel.

The same gentleman, Clement, is also the inventor of two instruments that have been well tested in France and England, to ascertain the speed of steam vessels, and to determine the heat of water in their boilers. The first is named a *Sillometer*, a title given to a substitute for the common log; and the second is termed the *Steam Engine Indicator*. The three instruments are described as being inventions of great practical value.

The Salts of Quinia.—PRINCE LUCIEN BONAPARTE has been making further researches on these medicinal agents. We have already once alluded to his experiments. He now recommends the employment in practice of both lactate and valerianate of quinia in preference to the sulphate, the latter not producing those functional derangements in the nervous system which the sulphate sometimes causes; and the former on account both of its greater solubility and more energetic action. The fact, established by various physicians in the Roman Maremme, that quinia alone, or its hydrate, is more efficacious as a remedy for intermittents than the sulphate, the prince considers due to its being converted into a lactate by the lactic acid of the gastric juice. This opportunity may be taken to mention (see *Gaz. des Hopitaux*) that attempts have been made to combine quinia with ferrocyanic acid, and a substance entitled *hydro-ferrocyanate of quinine* has crept into pretty extensive use among French practitioners. But Pelouze has ascertained that this substance is in reality nothing more than quinine mechanically mixed with a little Prussian blue, the consequence of spontaneous decomposition of the acid.—*London Lancet*, Jan. 28, 1843.

Consequences of the Accidental Introduction of pieces of Glass into the Body.—ECK, of Berlin, reports in the "*Medic. Zeitung*," 1842, No. 32, that a Prussian subaltern officer was

affected with a partial paralysis of the right arm, which had resisted all the general and local means of treatment employed for its removal. This paralysis, which chiefly exhibited itself in the flexor muscles, had been preceded in its commencement by sharp pains, extending from the palmar surface of the thumb along the forearm and humerus. Eck examined the thumb on its palmar side, and on observing several old cicatrices there, he elicited from the patient that a few years previously he had fallen down with a bottle in his hand, several fragments of which had penetrated his thumb; but, as he had been assured, every one of these was afterwards extracted. Eck, however, rationally conceiving that some fragment might still remain to keep up the present symptoms, pressed each of the cicatrices with some force, which operation in one place caused acute pain. He accordingly made a deep incision in that place, and on probing it with the end of a bistoury he found his instrument distinctly to strike against a hard and gritty substance. After the hæmorrhage had been in some degree assuaged, Eck, who now made out clearly that this substance was a piece of glass, extracted it by the help of a pair of forceps, dressed with charpie; but with considerable difficulty, so deeply was it imbedded, and closely enveloped with the surrounding structures. It proved to be about half an inch in length, and of a curvilinear shape, its larger extremity having been the more deeply seated. On its removal the patient soon recovered the complete use of his arm.

In the "Gazette des Hôpitaux" for the 22d Dec. ult., is detailed the case of a man who having severely cut himself by treading on some broken glass in his bedroom, entered the Hotel Dieu, Paris, where his wound was healed, the continuance of a piece of glass, deeply seated within it, not being recognised; but about five months afterwards he was unable from pain to put his foot to the ground, and he re-entered the hospital. Breschet, after ascertaining the fact that a foreign body still remained within the foot, made a crucial incision in the sole, and extracted a piece of glass, nearly an inch in length by half an inch in breadth, from the space between the first and second metatarsal bones. A severe attack of phlebitis supervened after the operation, as far upwards as the groin, and which was not overcome without much care, nor until the lapse of nearly a month, the patient being of a lymphatico-nervous temperament.—*Ibid*, Jan. 21, 1843.

Report of a case of Diseased Ear, which produced death, in a child of four years of age.—By THOMAS CARROLL, M. D., of Cincinnati.—M. W., a female child, was admitted into the Orphan Asylum, at the age of two years, and at the time of admission was laboring under chronic diarrhœa, which had worn it down to the last degree that life could endure; and at the same time it had suppuration of the right ear. After being in the Asylum some months, its health became better; but the ear continued to run, and the abdomen enlarged to unusual size. Notwithstanding the improvement of the general health, the diarrhœa continued, and the ear gave no evidence that suppuration would cease, though the diarrhœa at times seemed to promise a total cessation, yet it returned and became more severe at short intervals, until death. The strength did not improve as was expected, at least as far as regarded the inferior extremities, which latter circumstance was probably owing to the want of care, in not making her use them in endeavoring to stand. The want of proper exercise of the lower extremities caused a great disproportion in size between them and the rest of the body.

When I first enquired into the situation of this patient, which was in March, 1842, I found that she was fretful, and seemed to suffer pain, as she spent large portions of her nights in sitting up in her cradle and rocking herself constantly for hours; and afterwards would sleep much through the day.

As the ear ran very much, I directed a solution of the nitrate of silver to be injected into it several times a day, which was sometimes to be intermitted, and suds or warm water to be used in its place. Blisters were applied behind the ears, and her diet was rigidly regulated. For the derangement of the bowels one grain of Dover's powder, one of rhubarb, and half a grain of calomel, were combined and occasionally given. About a month before her death, a phlegmonous tumor appeared on the right hip, and suppurated, and discharged considerable matter. No sooner did this abscess heal, than the ear seemed more aggravated; the diarrhœa increased, and the whole side of the head became very much swollen; and the motory nerves on the side of the face lost their influence, showing that the portio dura of that side had become diseased. But, if motion, which had been given by this nerve, was lost; sensation, that in this part is derived from the fifth pair, was most acute. We are told by Sir C. Bell, that when a diseased condition, or rather de-

struction, of the expansion of the seventh pair of nerves on the face takes place, that the eye-lids of the affected side cannot be closed, as the orbicularis palpebrarum has its motory influence from that source. Aside from this, the present case is a beautiful illustration of the principles of Bell, for the child had the power of shutting the eye on the affected side.

The matter discharged from the ear had long been offensive, and it was evident that caries of the petrous portion of the temporal bone had existed to some extent for many months, but now the evidences were more decided, as the cavity of the ear received a larger amount of fluid than usual; and from examination the tympanum appeared to be gone. Large amounts of pus of an ill-conditioned kind was constantly discharged. The inflammation became intense over the mastoid process, and anterior of the ear; and forty-eight hours before death mortification of the integuments over the mastoid process took place; a few hours after a similar condition resulted anterior to the ear; and at death the ear was nearly ready to drop off. Poultices alone seemed to give any relief.

During the last few days the patient showed evident symptoms of great pain in the head; but at no time was there the least evidence of delirium, though much irritability of temper was evinced to the last moments of life.

After death I examined the morbid appearances of the head, aided by Drs. Woodward, Warder and Young. In exposing the cranium in the usual way, the cavity around the ear was laid open, and was found to contain considerable pus. The cavity extended over most of the squamous and petrous portions of the temporal bone, followed the zygomatic process nearly to the malar bone, and extended down the condyloid process of the maxillary bone to its connection with the angle of the jaw. The bones had lost their proper covering every where connected with the abscess; even the internal ear had not a vestige of any tissue covering the bone; and its inferior wall was perforated by caries about the eighth of an inch from the outer margin, which had been itself in a carious state for a considerable time. The foramen for the entrance of the internal carotid artery had thrown off its proper investment, and the artery meandered naked through it. The portio dura was either totally or nearly destroyed at its exit.

On the inner side of the temporal bone, and immediately at the entrance of the internal carotid, the dura mater was

found inflamed, and separated from the bone. At the base of the cerebellum the arachnoid membrane was opaque, and the surface of the brain abnormally vascular. About two ounces of fluid escaped from the surface and ventricles when the brain was exposed.

The pupils of the eye in this patient never dilated, and the eyes continued clear all the time—an instructive lesson with regard to the symptoms indicating effusion within the cranium.

This patient died at the age of four years, and had been under my care from the middle of February, 1842, until August of the same year. I do not know that any treatment could have been instituted, at any time, that would have proved efficacious in the management of the case; it is most probable that nothing could have been done, unless at a very early period. I have no knowledge of the circumstance that led to the suppuration of the ear, nor do I know at what time of life it took place.—*Western Lancet.*

Encephalo-Spinal Meningitis.—Dr. Bell, editor of the *Bulletin of Medical Science*, designates by this term, the disease described by Dr. Richardson, of Tenn., in the last vol. of this Journal (p. 430, Dec. 1842); and, after quoting Dr. R's account, gives the following notice of a discussion in the French Royal Academy of Medicine (sitting of the 6th September last) on a similar disease that prevailed in different parts of France.

“The subject of the disease described by Dr. Richardson, was brought up in a meeting of the French Royal Academy of Medicine by a Report from M. Ferrus, on a memoir sent by M. Rollet, chief physician to the military hospital at Nancy. It is well known that the epidemic meningitis prevailed in different parts of France, viz: at Versailles, Bordeaux, Avignon, Strasburg, &c. Interesting accounts of the disease have already appeared, by Faure, Villars, Chauffard, Forget, &c. It showed itself in Nancy with most severity among the military. Rollet regards it under two aspects, and as constituting two varieties: *cerebro-spinal meningitis* and *encephalo-meningitis*, according as the envelopes alone of the nervous centres, or the cerebral substance itself participate in the inflammation. At Nancy, as elsewhere, the disease

manifested itself by symptoms of great violence; there having been present the same disorder, in the meninges, active congestion, suppuration, and even softening of the brain and spinal marrow, according to the degree and intensity of the disease, as exhibited in *post-mortem* examinations of those who sank under it. The symptoms were, also, very much alike in different places in which the epidemic made its attacks, modified, however, by the seat of the inflammation;—a point on which Rollet lays considerable stress.

The subject of treatment is of course important, and it has been carried out according to the view of the pathology of the disease entertained by different practitioners. At Bordeaux, the disease having manifested some symptoms of periodicity, sulphate of quinine combined with opium was much thought of. At Avignon, Chauffard derived from opium, results described as truly miraculous. After some tentative practice, Rollet hit upon a plan which was successful, in his hands, but which he had recourse to only in cases of encephalo-meningitis. It is cauterization of the spine with red-hot iron. He used the cautery in such a manner as to give rise to a burn of the second degree, along the depression on each side of spinous process; repeating several times this energetic practice. In most cases the sensibility which had been deadened was soon revived; the pulse recovered its force and fullness, and, in fine, reaction followed sufficient to allow of bleeding the patient,—with a frequency adapted to the indications of the case. In two patients, symptoms of intermission having appeared, sulphate of quinine was employed. One of these persons died; the other recovered.

The following is a summary of the therapeutical course pursued by Rollet:—Fourteen cases of simple cerebro-spinal meningitis were treated with antiphlogistics alone; and of these all recovered. Of the same number of persons (14) attacked with encephalo-meningitis, four were subjected to the ordinary treatment, all of whom perished. The other ten were treated by cauterisation, with a result of six cures and four deaths.

The reporter to the Academy, Ferrus, eulogised the manner in which the subject had been treated by Rollet, and proposed in consequence a letter of thanks, the remission of his memoir to the committee of publication, and the inscription of his name on the list of candidates for corresponding membership.

An animated discussion in the Academy followed the report, in which Rochoux, Castel, Honoré, &c., took a part.

These gentlemen thought that Rollet had committed an error in diagnosis. The extreme gravity and indeed almost constant mortality from meningitis were well known; and how then explain this with the success in treatment as related? Probably, continue the objectors, the disease was a pernicious (congestive) fever, the paroxysms of which run into each other so as to simulate a continued fever. Some cases of rheumatism were also confounded with the reigning malady. Bousquet, in proof of the epidemic not being an open, ordinary phlegmasia, referred to the success which Chauffard had with the employment of opium. In fact, this physician, alarmed at the results of a simple antiphlogistic treatment, went over, once more, a study of all the phenomena of the disease, and detected a predominance of disorder of the nervous system which called for the use of narcotics.

To all these critiques Ferrus replies, by asserting that there was no mistake in the diagnosis. Rollet, as well as Forget, and a number of other distinguished observers in the departments, did indeed at first suppose the existence of a pernicious fever; but all of them, after an attentive and conscientious investigation, were led to form an opposite opinion. Now, when a number of enlightened men agree, without prior concert, in the same opinion, there are strong grounds for our admitting that their view is the true one. The number of cures is objected to in connexion with the nature of the disease described; but the numbers furnished by Rollet are well authenticated, and are proved by proper documents duly detailed. But, besides,—ought we to compare that which passes in one locality, or during an epidemic, with that which transpires in another locality, and when the disease is sporadic? And, again, Baudelocque remarked, that what was said of the almost uniform mortality of meningitis, applies to the granular kind in children and not to the simple meningitis of adults. The conclusions of the report were adopted by the Academy.

Galvanic Forceps.—These forceps are made by Gorck, the instrument maker, by order of Dr. Kilian, only to see what might be their effect upon the uterus. The blades are made of copper and zinc, and the metals are properly isolated from the hand of the accoucher. The first experiment with the galvanic forceps was made upon a woman aged 27, of dry constitution, choleric temperament, and jaundiced

complexion. The application of the forceps was decidedly indicated in this case. The head of the child, which was in the first position, remained fixed at the lower aperture of the pelvis; and the torpidity of the uterus was so great, that the child had not moved for two hours and a half; while the infiltration of the scalp was of the size of a man's fist. Before applying the forceps, Dr. Kilian had the patient bled to fourteen ounces; but this had no influence on the action of the uterus. The blades were easily introduced into the uterus; but the moment they were joined, the woman had a fresh pains which was very violent, without being unbearable. At the same time a movement was felt in the whole uterus, which became as hard as a stone, and lost the morbid sensibility which it had shown before on each examination.

This state of things continued from the beginning to the end of the application of the forceps, and in spite of the hardness of the uterus the pains had no expulsive power. Nothing, however, indicated any spasm of the internal sexual system. After four actions with the forceps, the head cleared the lower aperture of the pelvis, and then (as well as before), the femoral muscles underwent a spasm and trembling of an unprecedented kind. Dr. Kilian then removed his hands from the instrument, to see if the uterus, which was still contracted, would not complete the expulsion of the child's head; but this was not the case, so that he was obliged to continue the use of the forceps.

The infant immediately breathed, which was surprising, when we consider how long it had been fixed in the lower aperture of the pelvis. Hardly were the shoulders free, when the child, which was very strong, began to cry, and the pulsation of the cord immediately ceased. The uterus then contracted, and in five minutes the placenta was in the vagina. There were no pains after delivery, and the lying-in was quite regular.

N. Y. Lancet from Gazette des Hôpitaux.

Nursery treatment of Infants, submitted to Prince Albert.
By JOSHUA WADDINGTON, M. R. C. S., consulting Surgeon of the Royal Sea-Bathing Infantry.—No other kind of milk to be given to an infant in addition to the milk of the mother or wet-nurse.

The less rocking the better.

When asleep to be laid upon its *right* side.

The best food is "Lemann's biscuit-powder," soaked for 12 hours in cold spring water, then *boiled* for half an hour, not simmered, or it will turn sour. Very little sugar to be added to the food, and then only at the time *when given*.

Sweets of every kind, are most injurious, producing acidity, flatulency, and indigestion, sores in the mouth, and disordered secretions.

An infant will take medicine the more readily if made lukewarm in a cup placed in hot-water, adding a very little sugar *when taken*.

The warm-bath (at ninety-four degrees of heat, *not less*, for *ten* minutes, every other night) is a valuable remedy in many cases of habitual sickness or constipation.

"Soothing syrup," sedatives, and anodynes, of every kind; are most prejudicial. They stop the secretions. A very small dose of laudanum given to an infant may produce coma and death.

When an infant is weaned, which is generally advisable at the age of nine months, it is of the utmost importance that it be fed with the milk of *one cow*, and *one only*, (a milch-cow), mixed with "Lemann's biscuit powder" (prepared as before directed) and *very little sugar*.

Boiled bread-pudding forms a light and nutritious dinner, made with stale bread, hot milk, an egg, and very little sugar.

When an infant is twelve months of age, bread and milk should be given every night and morning: stale bread toasted, soaked in a little hot-water, and then the milk (of *one cow*) added *cold*.

Solid meat is not generally required until an infant is fifteen months of age; and then to be given sparingly, and cut very fine. Roasted mutton, or broiled mutton-chop (without fat), is the best meat; next to that, tender *lean* beef or lamb; then fowl, which is better than chicken; no pork or veal; no pastry; no cheese; *the less butter the better*.

An infant should not be put upon its feet soon, especially while *teething*, or *indisposed*.

Avoid over-feeding at all times, more particularly when *teething*. It is very likely to produce indigestion and disordered secretions, the usual *primary causes* of convulsions, various eruptive complaints, and inflammatory affections of the head, throat, and chest.

London Lancet, December 24, 1842.

New Process for Anatomical Injections.—In a letter addressed to the Academy of Sciences, Paris, July 11, 1841, DOYERE gives the following account:—I have employed, for nearly two years, a very simple process for obtaining fine injections. This process, which I believe likely to render some service to the anatomy of structure, and probably also to pathological anatomy, essentially consists in causing to enter in the same vessels, *within a certain interval of time*, two finely filtered saline solutions, which, by double decomposition, give an abundant and opaque precipitate. This succession of two injections is that which distinguishes my process from many others tried without success to obtain the injection of the capillary system by the same principle. I inject the second solution, as soon as the first has passed from the arterial system into the venous and lymphatic systems.

I have tried on animals a great number of insoluble salts, with a view to determine those which would give the most satisfactory results. I prefer to all others the chromate of lead. I first inject the chromate of potass, and am convinced that the order of injection is a point not to be neglected. A blue colour may be obtained by the precipitation of Prussian blue; brilliant red by iodide of mercury; white by the carbonate or sulphate of lead. The first has better succeeded with me than the carbonates and sulphates of lime and baryta.

The advantages which this process appears to me to possess over those in use, are above all to shorten the process of making fine injections, and to supersede any other preparation. It may be used with equal advantage cold or hot, in general or partial injection; the materials employed are unalterable, and may be consequently always ready. I will add, that the most minute injections required only a pressure which was evidently less than that of the heart's action. Poiseuille, to whom I made the process known several months since, in order that he might make use of it in his particular researches, has constructed an instrument by the assistance of which he can inject either liquid with that degree of pressure he considers proper.

By the assistance of this process, I have more than once succeeded in injecting by the femoral artery in a single operation, and in a few minutes, the capillaries of the muscular system in an entire animal, the adipose and cellular systems of the white and gray matter of the brain, of the conjunctiva, of all the mucous membranes, intestinal villousities, &c. The capillaries thus injected by the chromate of lead are

more filled, especially after drying, than by the injections of size, but less than by those of varnish (*vernis*); there also remains some doubt in my mind relative to the actual diameter of the latter canals. Those which run parallel to each primitive muscular fasciculus, to the number of four or six, appeared to me to possess, in the dog, $\frac{1}{400}$ th or $\frac{1}{300}$ of a millimetre; but it is possible that their dimensions had been reduced by the action of one or the other of the two solutions employed, or that they had not been sufficiently filled. I am now engaged in determining the relation which exists between the size of injected vessels, and their size during life.—*Microscopic Journal* from *Comptes Rendus*, July 1841.

Syphilitic Retraction of the Muscles.—This is a disease of rare occurrence, and which has only of late received attention. It affects most frequently the flexor muscles of the fore-arm, if we may be allowed to form an opinion from the generality of cases observed at the venereal hospital, under Ricord. The three patients who presented this remarkable affection had arrived at that point of constitutional infection characterized by the symptoms which are denominated tertiary by Ricord. In all these the retraction was very similar; the flexors of the fore-arm being affected by it. The muscles appeared shortened, as a result of the permanent contraction, which did not permit the extension of the fore-arm; but their tissue, though firm, presented no appreciable alteration. An important symptom was the peculiar pain which existed in the contracted part; this pain was increased at night, and resembled closely that experienced in syphilitic affections of the bones. In one of the patients the retraction was cotemporary with tertiary ulcerations of the throat; in another, with periostitis of the tibia. These patients were submitted to the treatment of iodide of potassium. The success, under its influence, was as prompt and easily obtained as in other tertiary symptoms. The pains ceased in each one as soon as the fifth or sixth day. The movements of the limbs underwent a progressive amelioration, and were soon perfectly restored.—*Lond. Med. Gaz.*, July, 1842, from *Bull. de Thérapeut.*

Prevention of Lead Colic.—Mr. Benson, the managing director at the British white lead works, Birmingham, says that the use of what he calls sulphuric beer by the workmen is an effectual preventive of the colic arising from the effects of the lead, and which, previously to the employment of the sulphuric beer, was exceedingly prevalent among the men. He was induced to try it from a statement made some time since, that sulphuric lemonade had been successfully used at a white-lead manufactory in France. Its action must be effected by the chemical transformation of the poisonous carbonate into the innocuous sulphate of lead. The formula for the preparation of the beer is as follows;—Take of treacle, fifteen pounds; bruised ginger, half a pound; water, twelve gallons yeast, one quart; bicarbonate of soda, one ounce and a half sulphuric acid, one ounce and a half by weight. Boil the ginger in two gallons of water; add the treacle and the remainder of the water hot. When nearly cold, transfer it to a cask, add the yeast, to cause fermentation. When this has nearly ceased, add the sulphuric acid, previously diluted with eight times its quantity of water, and then the bicarbonate of soda, dissolved in a quart of water. Close up the cask, and in three or four days the beer will be fit for use. As acetous fermentation speedily takes place, particularly in hot weather, new supplies should be prepared as required. The object in adding the bicarbonate of soda is to give a pleasant briskness to the beverage. The sulphuric acid remains greatly in excess.—*Lancet*, Dec. 17, 1842.

Robertson on the Cause of Caries of the Teeth.—Prior to the appearance of the first edition of Mr. Robertson's treatise, in 1835, the prevailing opinions concerning caries of the teeth were those of Fox and Bell; the former maintaining that the disease consists in an inflammation of the bony substance of the crown of a tooth, which secondarily affects the lining membrane of the organ, causing its separation, and a consequent decomposition of the solid parts; the latter insisting that caries commences in inflammation of the bone immediately under the enamel, from which, he says, the tooth, owing to its imperfect vitalization, cannot recover, and death and decay are the consequence.

Mr. Robertson, on the other hand, maintains that the remote cause of destruction of the teeth is the decomposition of food which lodges in the interstices between them.

The inflammatory theory, then, is to the effect that the teeth decompose by vital action, commencing in their interior, and proceeding to their surface. Our author's theory is exactly the opposite, namely, that decay begins by chemical action upon the surfaces of the teeth, and proceeds to their interior, and that inflammation is the consequence, and not the cause, of caries. His arguments are chiefly derived from the fact, that the teeth decay only in such situations as are favorable for the lodgment and decomposition of food, and never upon their smooth and even surfaces; from their decaying in pairs, and at particular periods of life; from the ready relief which filling and filing afford, if decay be not too far advanced; from the disease commencing externally and proceeding inwards, and never conversely; and from the circumstance, that artificial teeth are liable to the same species of destruction as natural ones.

These arguments we apprehend to be perfectly sound, and in accordance with the rules of common sense and experience; for we cannot imagine a disease, which owes its origin and progress to inflammation, to be susceptible of alteration or cure by means which, of all others, are most calculated to contribute to such action. But when the cause is purely chemical, and owing primarily to a defect of structure, it is not irrational to suppose that mechanical treatment will arrest or remedy it. It is on this ground that we think the practical application of Mr. Robertson's theory particularly valuable. Believing, as he does, that inflammation is not the cause of caries, but the consequence of it, and dependent upon the influence of atmospheric and other agencies upon the lining membrane of a tooth, he urges the necessity of removing any decay that may be apparent, *before the occurrence of pain*; for after its commencement there is little hope of permanent remedy. He insists upon the propriety of constantly using a tooth-brush, so that any particles of decomposing food may be removed; and of an occasional inspection of the teeth by a dentist, that any lurking decay may be arrested. He tells us that these suggestions have wrought a considerable change in his own practice—that people now apply to have caries arrested, rather than to have teeth removed in consequence of its ravages; and he maintains that, if this plan were universally acted upon, tooth-ache would be comparatively unknown, and the organs would be preserved in beauty and usefulness to the remotest period of life.—*Med. Ex.*, from *London Med. Gaz.*, Dec. 9, 1842.

Iodide of Potassium in Atonic Ulcers.—The utility of the hydriodate of potass in secondary syphilis is pretty generally acknowledged. Lisfranc has employed it with success in ulcers of long standing, which have resisted other modes of treatment. A man, sixty-eight years of age, was admitted under his care at the Hôpital de la Pitié, who had for eight years had two obstinate atonic ulcers on his left leg; one of which, five inches in length, extended round the limb for more than half of its circumference; the other was about two inches in diameter. The only topical application used was simple cerate and charpie, but Lisfranc prescribed a scruple of the iodide of potassium daily, which quantity he subsequently increased to six grains every six hours. At the end of six weeks the health of the patient had become greatly improved; his flesh generally had acquired firmness; his face was ruddy; and he had even gained fat. The smaller of the two ulcers had completely disappeared in twenty-five days, and scarcely one-tenth of the larger ulcer remained to be healed. In two months the man left the hospital perfectly cured.—*London Lancet*, Jan. 7, 1843.

Medical Topography of La Plata.—We are indebted for the following account to a review in the *Gazette des Hôpitaux*, of a pamphlet by Adolphus Brunel, surgeon-major to the corvette *La Perle*. It is entitled ‘Topographical, meteorological, and medical observations made in Rio de la Plata, during the blockade of Buenos Ayres.’

The Rio de la Plata is a great mass of water lying between the 34th and 36th degree of south latitude, which after having received the Parana, the Paraguay, and the Rio-Salado, falls into the Atlantic. Two considerable towns, Buenos Ayres and Monte Video, the capitals of the Argentine and the Eastern Republics, are situated, one on its right, and the other on its left bank. Its shores are pleasantly situated, with a temperate climate, and a very fertile soil. The spring begins in September, the summer in December, and the autumn in March. During the author’s stay, the greatest cold was 4+0 of Reaumur, = 41° of Fahr; and the greatest heat 24° R. = 86 F. The most frequent winds are from the N., the N.E., and the S.E.; they blow with violence, often change, and produce sudden and frequent alterations in the temperature and hygrometric state of the atmosphere.

The people who inhabit these countries may be divided into four principal classes.

First, the Creoles, sprung from the conquerors, to whom may be added all the Europeans and North Americans. Secondly, the Negroes imported from the coast of Africa. Thirdly, the half-castes, formed by the intermixture of Europeans, natives, and negroes. Fourthly, the natives, who may be divided into two classes; those, namely, who have become civilized, and those who, resisting every attempt of the Spaniards to subjugate them, have preserved their independence.

The Indians in the savage state inhabit the Pampas, and the deserts of the great Chaco; and they are divided into tribes of eighty or a hundred families, governed by a chief, who is generally elected. Since the importation of cattle, and particularly of horses, into America, those tribes are no longer cannibals. These Indians are below the middle stature; their head is large, their nose short and flat, and their cheek-bones prominent. The projection of the chin is wide, and the chin itself is the only part of the face that has hair; their lips are thin, and their mouth furnished with splendid teeth, which are admirably regular, and remain uninjured to an advanced age. Their chest is broad and prominent, and their limbs well turned; their hands and feet small; their complexion of a pale copper color; their long black hair meets at the top of the head, and they sometimes let it hang down; their hearing is very fine, and their sight piercing; their constitution is robust, they are bold riders, and never go but on horseback. They are distrustful, thievish, greedy, and cruel; drunkenness is their ruling passion; they are naturally lazy, and oppress their women with work. Their chief nourishment consists of horse-flesh, which they eat almost raw, and when it has reached a certain degree of putrefaction; at other times they dry the meat, and reduce it to a powder, mix it with plenty of salt, and make it into a paste. They use maize as food, and also make a fermented drink from it. The coagulated blood of a colt, kneaded with maize flour and salt, is one of their tit-bits. At present, the incursions of these savages into the different provinces of La Plata are less frequent than formerly; yet from time to time they plunder the farms and carry off the cattle. They make war with ferocity, massacring the men, and sparing only the women, and sometimes the children.

This part of America is exempt from the morbid scourges which devastate other countries. The plague of the East, the yellow fever of the Antilles, the cholera, typhus, and

intermittent fevers, are not seen there. Among common diseases are catarrhs, sore throats, croup, whooping-cough, pleurisy, and pneumonia, all connected with the rapid variations of temperature. Phthisis is also very destructive there. Diseases of the skin are very frequent; small-pox, measles, and scarlatina, are dominant epidemics. Caries of the teeth is endemic, and appears very early; girls, in particular, of sixteen or seventeen, have none but decayed teeth. The ravages of small-pox are frightful, especially among the native savages, whole tribes of whom it has often destroyed. The slightest wound, and frequently the mere transition from heat to cold, is sufficient to produce immediate tetanus. The negroes and Europeans are more usually attacked by it than natives. The *gauchos*, or half-caste shepherds, often succeed in treating this terrific disease by wrapping the patient in a sheep-skin recently flayed. Hepatitis and dysentery are common in the towns, and syphilitic diseases in the country. Goitre is endemic; and the negroes are subject to tubercular lepra.—*New York Lancet.*

The Chigoe, or Gigger. By FREDERICK ROBERTS, M. D., Assistant Surgeon of the 59th Regiment.—As medical authors give no account of the chigoe, which becomes so often parasitic to man, and a source of considerable annoyance to him in the West Indies, and as it has further been doubted to be an insect, the following short paper, containing the slender information that could be gathered from a few examinations of cases, respecting the habits, effects on the body of man, and treatment for its removal, is offered.

The “chigoe,” or “chiego,” of the West Indies, and the “*pulex penetrans*” of naturalists, consists of two species, the black and the white, in the natural history of which there appears to be no difference. The habitation of the “gigger,” as it is likewise called, is in stables, kitchens, and on the ground in the open air in dry weather, which is the season it mostly prevails in—that is, from December to July. It attaches itself to the feet of those who walk about bare-footed, and those whose occupations are in kitchens, abounding in ashes and other filth. Holes in boots or shoes render one liable to be attacked by them. Its intrusions are not confined to the human species, but it is found to attach itself to cats, dogs, sheep, and still more to pigs.

The parts of the body it is found in are the soles of the feet

and toes, and occasionally the fingers. It insinuates itself beneath the skin, and there deposits its eggs in a nidus of a tough gelatinous substance. Attention is first drawn to the presence of these insects by a gentle itching, which, as the insect insinuates itself deeper, and the nidus begins to grow, becomes, in a few days, less tolerable. The nidus, containing longish-shaped white gelatinous eggs, is a cyst of a tough membrane, and arrives sometimes to the size of a pea before the eggs are hatched, after which the new being likewise insinuates itself into the skin; so that in those who neglect extracting them there are clusters, buried under the skin of the soles of the feet and toes, which raise it in little round eminences, and create irritable sores, oozing a serous fluid, and ultimately intractable ulcers—nay, the entire toe has been known to be lost by the creeping ulceration that is established. The black gigger differs so much in its effects from the white, to which, it has been said, it otherwise resembles, as to be called the poisonous gigger, and produces much more malignant sores. The treatment for the removal of the chigoe consists in extraction by means of a needle—an operation dexterously performed by the negroes, and free from pain.—*New York Lancet*, from *London Med. Gazette*.

On Contusions of Muscles.—By WM. ALLISON.—The most interesting circumstance connected with contusions of muscles is the difficulty of distinguishing those injuries from dislocations or fractures of those bones which form cups for joints. Muscles are bruised by falls or blows; a limb is consequently stiff (whilst lengthened or shortened), and it becomes motionless at a joint, so that neither flexion nor extension can be performed by the subject of the accident; and sometimes considerable swelling ensues before a medical man arrives. The surgeon's attempt to move the limb, in order to ascertain the nature of the injury, produces a painful spasmodic action of muscles, sometimes without proving advantageous to himself, in his endeavour to find out the precise cause of the loss of muscular action and the stiffness of the limb. And whilst the surgeon has no means of completely satisfying himself with respect to the accident, he is closely questioned by the patient and his friends, and must either express his doubts or give indirect answers. We all know that by sleeping with the head upon the arm, so as to make good pressure on the median nerve, we may become unable, during many minutes

after waking, to move the fore-arm; that by sleeping cross-legged in a chair, so as to make a firm pressure upon the popliteal nerve, we may be, during many minutes, unable to stand upon the leg; that rheumatic stiffness may require great muscular efforts to restore the use of the limbs; and that sometimes after fractures of the arm or thigh, one means only can overcome the muscular rigidity, and restore action—namely, the frequent, resolute efforts of the patient to put the muscles in action; but I think it behoves us especially to ascertain the different effects and the practical consequences of violent muscular contusions.

1. The muscle or muscles may be so bruised as to be simply benumbed (with tonic or permanent contraction or with relaxation), the nerves being affected by the fall or blow, something like the brain from concussion.

CASE I.—Mr. Smith, of this town, remained with his leg, for half an hour, under a horse which had fallen with him, and which had then laid upon him, the horse having made fruitless attempts to get up whilst the leg was under him. Mr. Smith could not move his leg when first lifted up; but, being supported, he made great efforts to use it, until in ten or fifteen minutes he gradually became able to walk.

CASE II.—A woman, named Parkin, of Ordsall, fell from a load of hay upon the hard ground, in a very hot, dry summer; her thigh was for some weeks in the exact position of a dislocation into the ischiatic notch. By forcible extension I could place the limb in the natural position without pain; but it always returned to the apparently dislocated position. No fracture of the acetabulum nor of the neck of the thigh-bone could be felt. In four or five weeks she recovered the use of the limb.

2. The muscles may be bruised whilst in action, and remain stiff (with atonic contraction or with relaxation) so long as they are left at rest; but the moment an attempt is made by the patient or surgeon to move the limb, a violent, painful quivering or irregular spasmodic action comes on, and the limb cannot be placed in the natural position.

CASE III.—A boy was carrying two pails full of water suspended from his shoulders; in attempting to step down with them, from a very highly-raised causeway, he slipped backwards and sideways upon the edge of the causeway, shooting his heels before him. On my arrival his leg presented the appearance of a dislocation upon the pubis. Every attempt to bring that knee to a level with the other, either on a mat-trass or when standing upon the sound limb, failed; but it

produced painful, spasmodic muscular action. The chief pain was in the groin, where there was a swelling; but as the head of the thigh-bone could not be felt there, I proclaimed the accident to be "a serious injury of the muscles," which probably would continue some weeks. By leeches, fomentations, &c., the boy recovered in a week.

3. Muscles may be bruised, with extravasation or some injury ending in suppuration.

CASE IV.—I was called (July 1) to a lady who had been thrown out of a pony carriage in this town; her shoulder was dislocated, and her leg was bruised. Both before and after the dislocation was reduced she walked twenty or thirty yards very well, and she was sent home, a few miles off, in a chaise. The leg swelled, and became stiff and useless (to herself immovable). After leeches, fomentations, poultices, &c., had been used, with entire rest for upwards of five weeks, she became alarmingly ill, with high constitutional disturbance during her seventh month of pregnancy; and in about a week from that time (on the 17th of August) I opened a deep-seated abscess under the fascia of the gastrocnemius muscle, after which she became perfectly well, before her confinement (on the 17th of October), from which she recovered as usual.

4. Muscles may be bruised, with laceration of fibres.

CASE V.—In June, 1839, I was desired to visit a stout, heavy, muscular man, who, it was supposed, had dislocated his hip. On my arrival I heard that, whilst sitting upon the shelvings of a cart, he fell backwards with his shoulders upon the wheel, and reached the ground (hard sand-rock) in about the sitting position. Moving the limb gave excruciating pain, and occasioned spasmodic muscular contraction; nevertheless, after having placed his shoulders and hips in a straight line upon a mattress, and having grasped each ankle with one hand, I drew him downwards towards the bottom of the mattress, when I found the inner ankle-bone of the injured side full an inch and a quarter below the other, with the heel inclining inwards. I could bend the knee upwards towards the abdomen, but could not cross one thigh over the other. Adduction could be effected with some difficulty; but this limb was always longer than the other by an inch and a quarter, with the knee separated, and the toes turned outwards when in the easiest position, and there was a constant pain in the perineum. If the case had been one of dislocation into the foramen ovale, I supposed adduction could not have been effected, and I was not aware that it could be any other variety of dislocation. There was no crepitus about the joint; I

therefore believed it to be lengthening of the limb, mentioned by the late Sir A. P. Cooper, and delivered my opinion decisively, "that there was not any dislocation." However, I felt much more satisfied after my partner had accompanied me on my next visit. To the question, "What is the accident?" we replied, "a rupture of some part of the muscle which forms the buttock."

The gentleman was bled in the arm, took an opiate, had his hip fomented, and warm, damp linen kept upon the painful part; he then took castor oil; on the following morning twelve leeches were applied, and afterwards poultices. We cannot lift patients so affected into and out of warm baths; he was kept in the easiest posture, &c., and the case went on quietly; but the lengthened state of the limb, the inability to move it without violent pain for some weeks, and the sensation of something in the perineum, gave rise to doubts amongst his friends respecting a dislocation. In this case extension of the rigid muscles after the second week, by pulleys applied as if for a dislocation into foramen ovale, until fainting was produced, appeared to be serviceable. The consequences of the accident were, not only that the limb gradually became of the same length as the other, but that contraction went on until it was about an inch shorter, as it remains to this day, that he halts in walking, and that he cannot ride on horse-back without making the hip and thigh muscles very painful. I have on several occasions seen limbs as rigid from falls and bruises, when all attempts at motion have given violent pain; but in this case I cannot account for the lengthening and subsequent shortening of the limb, but by a laceration of muscular fibres. He can now walk ten or fifteen miles in a day without fatigue.

In relating the foregoing cases, I may not have classed them correctly. For instance, the pregnant lady may have had some laceration of the deep-seated tissues of her leg, as the carriage wheel had evidently passed over it; but that being now doubtful, merely serves to show the difficulty of stating the precise extent of injury at the first visit after an accident.

A surgeon, called to reduce a dislocation, has to distinguish one from a fracture near the joint; and sometimes, in forming his diagnosis, he is perplexed by muscular rigidity; at other times by considerable tumefaction from extravasation of blood; and on some occasions by extreme tension from effusion, the consequence of inflammation. As the late Sir A. P. Cooper, when speaking of dislocation, said, "Few accidents are more likely to endanger the reputation of the sur-

geon, as the patient may become a living memorial of his ignorance." I shall not apologize either for having called the attention of surgeons in the commencement of their career to this particular part of their practice; or for reminding them further that the biceps tendon may be ruptured, or that it may be displaced from its natural situation in passing over the head of the os humeri.—*Amer. Journ.*, from *Prov. Med Journ.*, May 28, 1842.

We read the following article in the London Lancet, (Nov. 26, 1842):

A Population getting Shorter.—"In the department of Finisterre (Brittany), the use of ardent spirits seems to increase, and to be attended with some peculiar effects on the population. In the two arrondissements of Quimper and Quimperlé, the spirituous liquors imported increased from 1,869 hectolitres in 1825, to 3,985 in 1839, and, corresponding with this increase, the average stature of young persons subject to military service is said to have diminished until it had become 22 millimetres (about an inch) less in 1838 than in 1818. A much greater number of individuals was also found unfit for service in the former than in the latter-named year. Gin and camomile have long been in repute in England for stunting the growth of little dogs."

As a part of the general subject of Hygiene, and in connexion with the principles and practice which should govern and prevail in the temperance reform, we have had frequent occasion to correct the common, we might almost designate it vulgar, opinion of the temperance of the French, as regards the use of alcoholic liquors,—because, forsooth, France is a country of vines and of wine manufactory. In reference to the very province noticed in the above article, from the Lancet, we may refer our readers to a volume of ours published last year, "On Regimen and Longevity: Comprising Materia Alimentaria, Dietetic Usages, and the Influence of Civilization on Health and Duration of Life." pp. 420. 12mo.

At page 78 of this work we find the following: "It will surprise many of my readers, who cannot connect ideas of intemperance in the use of strong drinks, with the habits of Frenchmen of any class, to be told, on very competent authority (Perrier, of Brest, Preface of Foreign Appendix to Report from Commissioners on the Poor Laws, p. 68), in reference to the people of Brittany: 'The principal cause of

misery is inebriety: its frequency among the lower orders keeps them in poverty. The "cabaret" (wine and brandy shops) absorb a great portion of their earnings. This vice is not confined to men; the women partake of it. It has decreased within the last five years, but is still (1834) considerable.' The favorable prospect held out in this last sentence does not, however, seem to have been realised.

"I shall refer again to this dark feature of French dietetic regimen, in connexion with health, when I speak of grapes and their fermented juice or wine, and also in a subsequent chapter upon drinks. It will then be shown, by statistical documents of French preparation, that the people of France, in the use of wine, cider, beer, and brandy, for drink, consume in this way, per individual, more than the people of Great Britain and Ireland, per individual. The evils growing out of the immense indulgence in alcoholic drinks, in the impoverishment, diseases, and demoralization of the French people, will also be exhibited, by reference to the communications and reports of their own physicians, statistes, and philanthropists." p. 80.—*Bulletin of Med. Science*, Feb. 1843.

Case of Abscess in the Walls of the Uterus, communicating with the Rectum.—Related at the Westminster Medical Society, December 3, 1842, by Dr. FREDERIC BIRD.—Mrs. G., aged 37, had, previously to the last three years, enjoyed general good health, menstruating regularly. At this date she married, and was soon afterwards attacked with acute deep-seated pain in the hypogastric region, radiating to all parts of the pelvis, and increased by micturition and defecation. These symptoms were associated with general constitutional disturbance, and, in fact, with all the ordinary symptoms of inflammation affecting the uterus. She passed through the usual forms of treatment, and although the more urgent symptoms were mitigated, yet she continued to suffer during the three following months from occasional pain in the region of the uterus, always produced by attempts at expelling the contents of the bladder or rectum, the discharge of fæces being also sometimes effected with great difficulty. An internal examination made at this period detected the uterus lower in the vagina than usual; there existed marked enlargement of that organ, the chief increase in size being found to occupy the posterior wall; the os and cervix uteri were painful to the touch and tumid.

Shortly after the vaginal examination had been made, about half an ounce of pus suddenly escaped from the rectum, and she experienced immediate relief from her former symptoms. She now became the subject of diarrhœa, generally passing from six to eight evacuations daily, each of which contained more or less purulent matter; pain in micturition was no longer felt, but she invariably suffered greatly when passing motions. The diarrhœa could not be arrested by any of the remedies employed; her general health, nevertheless, slowly improved, and she went into the country, where she remained during the succeeding two years, little or no variation in her symptoms having occurred. The diarrhœa, and with it the discharge of pus from the rectum, continued; on some occasions more than a pint of pus has been thus evacuated during twenty-four hours, and she observed that whenever the pus failed to be discharged so freely as usual the local pain became aggravated. During the whole of this period menstruation had been very irregular, generally occurring at intervals of eight or nine days, accompanied by much lumbar pain and the passage of coagula.

After the lapse of the time mentioned, she again applied to Dr. Bird, suffering from nearly all her previous symptoms, and, in addition to them, profuse menorrhagia; the pain in the region of the uterus was extremely acute, increased by the passage of the fæces and by pressure on the lower part of the abdomen, to which became added a neuralgic condition of the genital organs, the slightest pressure upon which produced extreme suffering; so great was the pain thus excited that she was accustomed to employ a mechanical contrivance to prevent the bedclothes from touching the pubes. A vaginal examination was, with much difficulty and pain, again made; the uterus was found to be nearly in the same state as before, excepting that it had become quite immoveable, appearing as if impacted in the pelvis, just as may be observed in some forms of malignant disease affecting that organ. No benefit resulted from medical treatment, occasional relief only being afforded by large doses of opium and the external application of belladonna.

She continued to suffer from frequent discharges of blood from the vagina, and from all her former symptoms, until the lapse of six weeks, when she sank exhausted by the extreme suffering produced by her disease.

A *post-mortem examination* was made twenty-four hours after death. On laying open the abdomen, the omentum, small intestines, and all the pelvic viscera, were found agglu-

minated together by peritoneal adhesions of old date. On raising the uterus it was seen to be firmly attached by its upper and posterior portion to the rectum; it presented an irregular form, having the fundus enlarged to about thrice its natural size. A longitudinal section showed this enlargement to have been produced by an abscess seated in the substance of the wall of the fundus uteri, the cavity of which contained about an ounce of dark thick pus; the walls of the abscess varied in thickness from one to three-quarters of an inch, the thinnest portion being nearest to the cavity of the uterus. A communication by means of a short sinus could be traced from the cavity of the abscess to the adherent portion of the rectum, and opening into that intestine by an aperture sufficiently large to admit of the passage of a thick probe, and evidently of old formation. No communication existed between the uterine cavity and that of the abscess. The os and cervix presented no evidence of malignant disease. The Fallopian tubes and ovaries were adherent to the uterus, and could with difficulty be distinguished. The uterus had never been impregnated.

He (Dr. B.) had been induced to bring the case before the notice of the society chiefly from the rarity of such forms of disease; very few cases had as yet been described, and those which he had hitherto met with in the works of Madam Boivin and others were complicated with carcinoma or other malignant disease of the uterus. In the instance he had related no evidence of such disease existed, but it was clearly a case of inflammation of the substance of the uterus terminating in the formation of abscess. It was difficult to account for the neuralgic state of the generative organs, unless the immoveable and apparently impacted condition of the uterus might be received as sufficient to produce such an effect by mechanically pressing upon the surrounding nerves, an idea favored by the fact that at the earlier period of the case, when the uterus was not thus fixed, the pain was limited to that viscus and did not extend to the external organs.

* * * The preparation was exhibited to the society, where Dr. Chowne stated that he had never seen a similar case. The uterus and its appendages, he said, were in that conglomerated state which is usually observed in women who had led an irregular life, and which was, probably, in them, dependent upon early and excessive excitement. This adhesion of the ovaries, Fallopian tubes, &c., in prostitutes, had been noticed also in France. Perhaps, he added, in Dr. Bird's case, this condition might have been the result of the disease under

which the patient labored. On the same occasion another member of the society, Dr. Reid, said that he also was unacquainted with the record of any similar case, excepting those related by Madame Boivin, and thought the disease must be a remarkably rare one.—*Lond. Lan.*, Jan. 28, 1843.

Tuberculous Disease of the Spinal Marrow.—Dr. J. B. S. Jackson exhibited a specimen of the above disease. It was situated at the sixth cervical vertebra, and involved almost the entire substance of the organ at that part, forming an opaque, yellowish, solid, well-defined and uniform mass about as large as the tip of the little finger. The spinal marrow was somewhat enlarged at the seat of disease, and was a little softened just above and below it, but was elsewhere quite healthy. The membranes, also, were healthy, except for some thickening of the dura mater at the upper part. In the brain there was a copious effusion of serum, with complete softening of the septum. Extensive tuberculous disease was found in both lungs and in the intestines, besides similar disease in the prostate gland and in the kidneys.

The patient, an Irish laborer, æt. 42, died September 25th. Health quite good previously to the last year, and since then no local trouble except a disease in the ankle joint. The symptoms of spinal disease came on about three and a half months before death, and, when examined on the 13th of August, were as follows: diminished sensation, with hardly a trace of voluntary motion in the lower extremities, the upper being very much less affected; very frequent and involuntary contractions of the right lower extremity, tending to draw the limb up into a strongly flexed position, and attended with very severe pain; some contractions of the left lower extremity, but without pain. Even on moving the bed clothes, the muscles of the lower extremities would be strongly excited, and, in attempting to straighten them when they were drawn up, his suffering was very great. In the upper extremities these spasms were very much less. The bladder was completely paralyzed, so that the catheter had been used daily for the last three weeks. These symptoms continued with but little change till death, the spasms being on one occasion so violent that the patient was fairly jerked out of bed, and fell upon the floor, though fortunately with but little injury. He suffered much also from a morbid sensibility, and from neuralgic pains in the right lower extremity, pass-

ing up into the abdomen. Respiration was carried on by the diaphragm, the intercostal muscles seeming to be completely paralyzed. The catheter was used till the last month, after which the urine became involuntary; the dejections, also, were for the most part involuntary, whenever procured, the bowels being very costive. The spine was often examined, but the patient scarcely ever allowed any pain or tenderness there, neither was there any trouble in the head worth mentioning. When first seen his general aspect was sufficiently well, but as the disease advanced, he became exceedingly emaciated, and for sometime before death was very much sunken, with sloughs about the sacrum. As to his pulmonary disease, he had no symptoms that led to a suspicion of it; these was occasionally some dyspnœa, but, as it was generally accompanied with a feeling as of a cord about the lower part of the chest, it was attributed to the paralysis; the nurse, on being questioned after the death of the patient, mentioned an occasional, very slight cough during the last few days, but never before.—*Rep. of Bost. Soc. for Med. Improvement*, Sept. 26th, 1842, in *N. E. Quarterly*.

Latent Insanity.—In many cases the experienced eye of the medical practitioner may be able to detect the existence of latent insanity. In such instances the patient evinces no evident indication of any irregularity of mind. His dearest friends and constant companions can perceive no alteration in manner sufficient to excite a suspicion of insanity. Occasionally the patient may manifest a strangeness and oddity of conduct, which is, however, but little noticed. The individual may, notwithstanding, be suffering from incipient symptoms of derangement. He has not altogether lost all power of controlling his feelings or ideas; an internal struggle may be going on between what he knows to be a fact, and the false conceptions which almost like an avalanche are forcing themselves upon his mind. None but those who have gone through this dreadful ordeal can form an accurate notion of the mental agony which a person so unhappily situated experiences! Dr. Darwin relates the case of a most elegant lady who suddenly became melancholy. She retained, however, so great a command over herself, that she was enabled to do the honors of her table with grace and apparent ease. After many days' entreaty, she informed her physician that she thought her marrying her husband had made

him unhappy (though it was a love-match on both sides), and that this idea she could not efface from her mind, day or night. It is astonishing for what a length of time a patient under such circumstances will struggle against a delusion which is endeavoring to fasten itself upon the mind. In such cases the patient gives no marked indication of mental unsoundness; she will attend to domestic duties, mix as usual with parties of pleasure, take her accustomed seat at the opera, and yet manifest no sign of the tempest raging within. How often do such patients confess to the medical practitioner, when the state of mind becomes so apparent as to compel the friends to summon relief, that for months they have been contending courageously against what they were conscious were erroneous perceptions. Hoping eventually to master these false ideas, they have concealed, from those in whom confidence ought to have been placed, their melancholy condition. This state of mind is fraught with much cerebral mischief. It cannot exist for any length of time without serious consequences ensuing.

F. Winslow's Health of Body and Mind.

Public Speaking.—One of the greatest errors committed by public speakers, when addressing large bodies of people, is speaking too fast. They forget that distance has the same effect upon sounds as it has upon architectural or other ornaments; it melts, as it were, the more minute parts into a confused mass. Elaborate and ornate passages in music cannot be appreciated by a moderately distant listener, while the bold and distinct slow movement can be felt and understood by him with ease.

THE WESTERN JOURNAL.

Vol. VII.—No. IV.

LOUISVILLE, APRIL 1, 1843.

TRAVELLING EDITORIALS.

Already do we repent of our rash resolve, to take up, at stated periods, the pen editorial; and if said determination had not been made public, we should forthwith repeal it. Doubtless the *public*, that is our readers, would without much persuasion consent to such a repeal; but who is to move in the matter? One party is likely to be too proud—the other two courteous, and there the matter must rest.

Removal of Dr. Barton to Cuba.

Two days after our arrival in New Orleans, Dr. E. H. Barton, formerly a Professor in the Medical College of Louisiana, and lately President of the Board of Health of the City, (both of which establishments he was mainly instrumental in effecting), departed for Havana. If not intending to expatriate himself, this gentleman, from circumstances in the health of his family, may sojourn there for some years, during which, we trust, he will make a thorough investigation of its fitness for our invalids in the winter. Dr. Barton's long practical acquaintance with the diseases of these climates, together with

his science and urbanity, must render him a valuable physician and friend to such of our invalids as may visit the island of Cuba.

Winter and Spring visits of Invalids to New Orleans.

It is difficult to understand why physicians will advise their patients with pulmonary disease to come into Louisiana in the winter, and early spring. Nothing in general could be more exceptionable. It is nearly a month since we entered the limits of this State, during which there have, it is true, been a few fair days, but with one exception they were too cold for the valetudinary. The dampness of the atmosphere through the months of February and March, is so great as to render it injurious to all who labor under pulmonary disease; and the exposures on a winter voyage, are such as no invalid ought to suffer. They who seek a milder climate, should do so in November, and continue in it till after the vernal equinox.

Winter Temperature of the Mississippi.

The surface temperature of the Mississippi, from the mouth of the Ohio to the Balize, we have found to be, during February, from 34° to 44° of Fah. Difference of latitude about 8° —general course of the river South. Thus a degree of latitude raises the heat of the river a degree and a quarter. But the effect is not wholly ascribable to change of climate, but likewise to change of altitude; though the influence of the latter must be less than that of the former, as it does not, probably, exceed two hundred and fifty feet; or about thirty feet to the degree of latitude. The discharge, for three months, of so great a volume of cold water into the Gulf, must exert an influence on its temperature, which might be ascertained by a sufficient number of observations. We have as yet had opportunity to make a few only. In the "S.W. pass," beyond the bar, and within the geographical limits of the Gulf, we found the turbid and saltless river-water to be 44° , while at the depth of between fifty and sixty feet, where the water was nearly transparent, and decidedly salt, the heat was 51° . On one side of the fresh water, where the appearance was somewhat turbid and the taste brackish, the heat was 53° , and a little beyond, in the green and salt water, it was 56° and 57° .

Medical College of Louisiana.

We have made one visit to this Institution. Beginning its session later in autumn than the other schools of the Union, on account of the occasional prevalence of yellow-fever in November, the lectures

continue through the month of March. We regret to say, however, that many of the pupils start home at the end of February. The number of the present session is, we understand, about thirty-five; which is an advance upon preceding years. They are principally from this State, Alabama, and Mississippi. The lectures are delivered in a rented house, but the Professors have begun the creation of a fund for the erection of an appropriate edifice. Neither the State nor the city has done any thing for the Institution. Its Professors are seven in number, who deliver from four to five lectures daily. The opportunities for practical anatomy are ample. The tickets of the Professors are twenty dollars each. It must be admitted that this school, in the number of its pupils, has fallen short of the expectations under which it was established; but we have not had an opportunity of investigating the causes which have retarded its growth; and which, it is to be hoped, may ere long be removed.

Death of Tiger-Tail.

In two visits to the New Orleans' barracks the head quarters of Brig. Gen. Arbuckle, we saw the Seminole Chief Tiger-Tail, on a sick bed. We were surprised to find him capable of conversing with us, but were told that before the war commenced, he had spent a year in the family of Gov. Duval, of Florida. At the times of our visits the captive warrior, labored under a fever, with cough, and a leg more or less swollen and inflamed from accidental injury. By auscultating his naked and weather-beaten chest we heard, what perhaps but few had ever heard, the palpitations of his savage but patriotic heart. Gen. Arbuckle, and the skilful surgeon of the post, Dr. Randall, were anxious that he should receive the treatment which his case required; but he preferred his own physician, under whose incantations he expired a few days since. Since that time, his surrendered countrymen have been sent on to Fort Gibson.

New Orleans, March 10, 1843.

D.

MEDICAL CONVENTION OF OHIO.

We would remind our readers that, according to adjournment, this body meets in Lancaster, Ohio, on the second Monday in May—the 8th day of the month. We anticipate an unusually interesting meeting, as at the last session, held in Cincinnati, and which we

had the pleasure of attending, many subjects of interest were referred to the coming one.

We acknowledge the reception of the "Proceedings" of the fifth (last) session of the convention, which multiplied engagements have hitherto prevented us from noticing. We observe that it contains two papers, one "On the Topography and Diseases of Scioto County, Ohio," by Dr. G. S. B. Hempstead of Portsmouth; the other "On the Causes and Treatment of Milk-sickness," by Dr. John Dawson, of Greene County. The rule adopted by the "Censors" (in the absence of any definite instructions from the convention) cut off all the other papers placed in their hands. This rule seems to us in the main correct, as also do the suggestions made by this committee in reference to the proper objects of attention on the part of members of the convention. A few such papers as that of Dr. Hempstead, would give the body a character abroad, which volumes of wire-drawn speculations on old and trite subjects would never create for it. We shall refer to this paper hereafter. C.

ARTIFICIAL ANUS.

We will not pay our readers the poor compliment to suppose that they have *not* read the learned and valuable paper of Dr. Gross, on *Wounds of the Intestines*, which occupied so large a portion of the three previous numbers. They will, no doubt, be pleased to learn that we shall publish in the Journal for May or June, an article from the same pen on the nature and treatment of *Artificial Anus*. This will be in some sort an appendix to the paper just mentioned, and the two together will form one of the most complete monographs that we know. C.

LOUISVILLE MEDICAL INSTITUTE.

The published Catalogue of this Institution shows that there were one hundred and eighty-nine students in attendance during the past winter. Of these forty-six were from Kentucky, forty-six from Tennessee, twenty-eight from Mississippi, twenty-four from Alabama, thirteen from Ohio, twelve from Indiana, and the remainder from Louisiana, Georgia, the Carolinas, Virginia, Missouri, Illinois, Mich-

igan, &c., &c. There were thirty-seven graduates. The Honorary degree of Doctor of Medicine was conferred upon the following gentlemen: JOSIAH HIGGASON, Somerville, Tennessee; JOSEPH M. WOOD, Liberty, Missouri; RUFUS HAYMOND, Brookville, Indiana; JOSEPH R. BUCHANAN, Kentucky. C.

“MEUM AND TEUM.”

Under the above head (which may or may not contain a typographical error) the *Medical News*, which seems to aspire to the respectable office of *tender* to the *American Journal of the Medical Sciences*, holds the following language:

“*Meum and Teum.*—We observe that the editors of the *Western Journal of Med. and Surgery* have done the editor of the *American Journal of the Medical Sciences* the honor to estimate several of the articles of his quarterly summary of sufficient value to be transferred to the pages of their Journal. They have considered the compliment of making use of his labours, however, sufficient, without thinking it necessary to make the acknowledgment which bare justice requires in such a case.”

We freely acknowledge our indebtedness to the American Journal, as well as to other eastern periodicals, for foreign news, and the pages of this Journal will show that it has been our custom to make the usual “acknowledgment”—to a greater extent perhaps than some of our contemporaries, equally indebted as ourselves. There is scarcely a number of it that does not contain articles credited to the American Journal; and if such credit has been at any time improperly omitted, the editor of that Journal will, we are sure, do *us* the “justice” to believe that it was done inadvertently. We shall endeavor to avoid such omission in future.

The paragraph we have quoted strikes us as being tolerably *pert*, to come from one who, so far as we can see, has no interest whatever in the matter. It would be well for its author, perhaps, to polish both his manners and his Latin, ere he takes us to task again. We would also recommend him, in view of his disinterestedness on this occasion, *posthac in res suas diligenter incumbere*. We have couched this last in Latin, because, as he seems to have a fondness for the classics, it may thereby more readily attract his notice. Attention to these two suggestions may possibly keep him out of trouble. C.

QUADRUPEDS OF NORTH AMERICA.

John James Audubon, Esq., the distinguished author of the magnificent work on the birds of North America, is now engaged, in conjunction with his two sons, upon a similar work respecting the natural history of the viviparous quadrupeds of the same region. This work is already considerably advanced, having been in progress for several years. It is to consist of thirty numbers, several of which are already completed. Mr. Audubon recently passed through our city, accompanied by several scientific gentlemen, on his way to the Oregon Territory, where he expects to spend several months prosecuting his researches. We had the pleasure of meeting him during his sojourn here. He was in fine health and spirits, his step as elastic as in youth, and his form still unbent and his eye undimmed by the suns and snows that have blanched his head. We were gratified with a view of some of the drawings for the forthcoming work, and were startled by the vivid and life-like portraits of some of the more familiar quadrupeds. His pencil seems to have lost nothing of its wonderful power, and we can assure the lovers of science everywhere, that a rich treat is in preparation for them, such as Audubon alone could give.

We cannot but look upon Mr. Audubon as one of the most remarkable men of the age. To our intellectual vision he stands solitary and alone. We are writing this paragraph almost in the midst of the scenes of his early labors, where, filled with the design of the great work which has made him world-renowned, he was struggling against mountain-difficulties that one of less bold and daring genius would have deemed insurmountable. Such they seemed to those around—and so utterly chimerical did his project appear that he had to encounter not merely the sneers and scoffs of enemies, but the lukewarmness and the estrangement of friends. After long years of toil, of labors to which the fabled ones of Hercules were but as girlish pastimes, when he had well-nigh completed the vast undertaking that has rendered his name immortal, he was still regarded as one whom long sojourn amidst the unbroken solitudes of nature and infrequent visits to the haunts of men had unsettled, and was considered a fit mark for rude gibes and jests. When at length he bore about him the splendid fruits of his martyr-like devotion, when the winged and beautiful inhabitants of our vast forests seemed flitting

from spray to spray upon his canvass, or pouring forth their "wood-notes wild" along his enchanting page, obstacles seemed to thicken between him and the darling object of his life. Men heard and wondered—few believed. To publish was deemed the *ultima thule* of temerity. "My friends told me," said he, "to burn up my drawings and go home. I went abroad and the same advice was given me, "burn up your drawings and go home." But upborne by the divinity within, and true to its unerring instincts, he pressed forward, with the same iron will, the same indomitable energy, and lo! his name has gone abroad upon every wind—absolutely identified with the natural history of his native country!

Such a man does not appear in every age—it takes centuries to give birth to him. His whole history is full of interest. Not that it is singular; for it is the history of most great men. Such are seldom if ever appreciated in their early career by those immediately contemporaneous, which stamps them at once as the true nobility. Genius with its keen, sky-cleaving pinion ever holds its flight high above that of the multitude, and with far gaze pierces the future.

C.

ANONYMOUS PAMPHLETEERS.

The Editor of the *Boston Medical and Surgical Journal* (March 15) speaks, in a tone of just indignation, of an anonymous pamphlet sent to him (from this city?) purporting to give "some account of the Faculty of the Louisville Medical Institute." He lashes its author or authors (for they are plural) to some purpose. Whether he has an inkling of whom he speaks, we do not know. He may rest assured, however, that he cannot say anything too severe of them. No epithets he could apply, would give any adequate idea of their cowardly meanness and malignity. Filthy and corrupt as they are, their sole gratification is in attempting to defile the good character of others. As with obscene birds, this occasional belching-forth of the putrid contents of their stomach is necessary we suppose to their own safety—the only other effect it has, is to make them a stench in the nostrils of all good men, and thus widen the circle around themselves. The publication of this pamphlet, cowardly and assassin-like as it is in the extreme, could scarcely add to their degra-

dation, unless in that depth there might be a lower deep. The fact that they are ashamed to acknowledge their own filthy and leprous off-spring, might be taken as an evidence of some remnant of good in their depraved nature, if we did not know them to be as dastardly as they are dishonest, as bankrupt in moral courage as in all else.

The secret of this matter can be told in a very few words. This pamphlet is composed of a number of scurrilous articles which appeared in one of the papers of this city, soon after the nefarious scheme to transfer the Medical Institute was defeated. These articles were concocted by the same knavish triumvirate who were so deeply engaged in that scheme, and who participated so actively in the publication of the infamous report made to the City Council on the subject. (See this Journal for September and October, 1842.) Of course, men who were base enough to sanction and give currency (as in that Report) to statements which *they knew to be false*, would have no scruples about uttering stale and oft-repeated slanders, such as are contained in this precious pamphlet, with the addition of whatever their own malice and devilish ingenuity could invent. What villainous act they will next be caught in, remains to be seen. C.

MEDICAL RESIGNATION.

Dr. N. WORCESTER has resigned the chair of *Physical Diagnosis and Pathological Anatomy* in the Medical College of Ohio. We regret to learn that the state of his health rendered this step necessary. The trustees of the college, as we are informed, have since abolished the chair. C.

NEW YORK LANCET.

The *New York Lancet*, which "blazed, the comet of a season," has comet-like "shot madly from its sphere"—in other words it is defunct. "We could have better spared a"—worse journal. "The rage (if such there be) for hebdomadals will be short lived—" what think you of that now, O wise son of Ballymena! "Moon-struck" quoth-a? C.

THE
WESTERN JOURNAL
OF
MEDICINE AND SURGERY.

MAY, 1843.

ART. I.—*Medical Topography of Central Arkansas; being Observations on the Locality, Climate, and Diseases of the City of Little Rock and vicinity, in the year 1840.* By W. J. GOULDING, M. D., of Little Rock.

The relative importance of Medical Topography to the advancement of our science is now highly appreciated. Many elaborate papers of this kind annually appear in our journals; and we are led to value these successive additions to our medical literature the more from the conviction that, if ever we have a digest worthy to serve as a guide to the practice of medicine in the Southern States, its best materials will be sought in the accumulated contributions of local

medical history. Physicians, in innumerable dissertations on our science, have applied to all regions of the earth some aphorisms of Hippocrates applicable only to Greece and a few adjacent countries; this error is now known, and the most accurate observation of Nature in a given climate is found requisite to an enlightened and efficient practice in that climate. Nor is the study of all the physical circumstances of a given district which may affect the health of its inhabitants, alone required; but the peculiarities which the same disease at different times assumes, are especially to be noted; and perhaps no country, from its great extent and varied natural features, calls more imperiously for the careful observation of these facts than the United States. But waiving further preliminaries, I proceed to the more immediate object of this paper.

The city of Little Rock, which represents central Arkansas, is in latitude $34^{\circ} 40'$, and longitude $15^{\circ} 20'$, about 300 miles by water from the mouth of the Arkansas river where it joins the Mississippi. Major Long, who passed it in 1820 says: "It is a village having six or eight houses and occupies a high bank of clay-slate on the south west side of the Arkansas river. Its site is elevated, and the country immediately adjoining is in a great measure exempt from the operation of those causes which produce a state of the atmosphere unfavorable to health." It is in fact the first eligible site for a town that occurs in ascending this river; being near the centre, and the capital of a large and growing state, its future destiny can hardly be mistaken. Besides a United States' Arsenal, it has already many fine public and private buildings. Population, 2,400.

The face of the country of central Arkansas, though much diversified, may be classed under three varieties; first, *alluvial* or river bottom; second, *upland* or hilly; third, *prairie*.

The first variety is chiefly met in descending the river; the soil is of the richest kind; it is the most thickly settled but the least healthy. It is here that the forest is seen in its greatest magnificence, where the cypress, oak and cotton-wood vie in

power, lending their support to enormous osier and grapevines which delight

“To weave their gorgeous tracery far above;
With the light melting through their high arcades,
As through a pillared cloister.”

But the want of good water, and the liability of this portion to the annual Nile-like floods of the Arkansas river, weigh against its great natural fertility. Yet the bottom lands of central Arkansas may fairly be set down as excellent of their kind; the banks rarely descend as they recede from the river; corn and cotton are the staple productions.

The second, or upland variety, in the face of the country, is by far the most extensive; it is always rolling, often hilly, with but little undergrowth save luxuriant grasses and flowering herbage; having forest chiefly of oak interspersed with hickory, its whole aspect, so open, park-like, and beautiful, presents a striking contrast to that of the first variety. This second variety constitutes by far the most salubrious district; good springs of water are met with, but are not common; corn and the small grains are grown advantageously, but cotton becomes an uncertain crop; most of the soil is tilable, much of it decidedly good.

The third variety, or prairie, is the least extensive, and is found at a distance east of Little-Rock, between the Arkansas and White rivers; several small prairies, and a large portion of “big prairie” so called, are found in this direction; usually of the better kind of dry or upland prairie, they easily admit of cultivation although as yet but little cultivated; their greatest drawback is the want of good water.

From the foregoing it will be perceived that the greatest diversity in the face of the country obtains in central Arkansas; the sea-like prairie and the beetling cliff—the mountain torrent and the sluggish bayou—the sleeping lake and the mighty river, will not unfrequently by quick succession agreeably surprise the traveller or command the fullest admiration of the lover of nature. This marked diversity joined to a genial climate renders it a locality of peculiar interest in re-

gard to its natural productions; the muscadine and other wild grapes, as also the date-plum (*dyospyros pubescens* of Pursh), and the paw-paw (*porcelia triloba*), are found in perfection here. The cane (*miegia*) extends itself high up this river, and the beautiful china-tree is easily grown and is said to have become naturalised here; among the forest trees are found the false orange (*maclura aurantica*), evergreen holly (*ilex opaca*), tupello gum (*liquidambra styraciflua*), and the coffee-bean tree. Among medicinal plants, the *palma christi*, *spigelia*, two species *gillenia* and two *baptisia*, also the more valuable of the natural families *labratae* and *solanae* are here found in the greatest profusion; the tarantula, the scorpion, and centipede, (the last of enormous size) among reptiles; and beautiful specimens of the amethyst and topaz among minerals. Anthracite coal of an excellent quality is at this time an article of export from central Arkansas, and the locality of "Hot-Springs" in this State will yield to none in the world perhaps in geological interest.

I come now to speak more particularly of the climate; in this respect we have a medium between that of New Orleans on the one hand and that of St. Louis on the other; it may also be observed that distance west of the Mississippi, and the more elevated character of the adjacent country renders the air far less humid and the prevailing winds in general more agreeable than in the immediate valley of that river. Ordinarily the peach is in *full* flower quite early in March, and the forest in *full* leaf by the first of April. But as a just estimate of climate can be drawn only from daily and accurate meteorological observations, I will here insert the following table, being an abstract of much more detailed observations for the year 1840, following the same with such other remarks as the farther elucidation of the subject may seem to demand.

ABSTRACT FOR THE YEAR 1840.

Months.	Thermometer.			Winds.								Weather.									
	Highest Degree.	Lowest Degree.	Mean Temperature.	Hottest day.		Coldest day.		N.	N.W.	N. E.	E.	S. E.	S.	S. W.	W.	Prevailing.	Days fair.	Days cl'dy.	Days rain.	Days snow.	Prevailing.
January, February, March, April, May, June, July, August, September, October, November, December,	63 78 81 84 87 93 92 96 88 86 73 72	19 20 36 47 53 58 64 65 51 38 22 23	40 50 57 64 70 78 79 79 71 65 50 45	6 29 18 24 30 29 17 3 7 9 7 9	1 1 20 11 9 7 4 4 14 19 26 25 31	31 39 55 48 33 52 55 53	West, South, West, South, West, West, East, N. East, N. East, N. N. E. East, South,	13 18 18 14 26 24 22 24 20 21 20 16	18 11 13 16 5 6 9 9 7 10 10 15	7 5 6 9 4 5 9 9 7 6 8 4	1 0 0 0 0 0 0 0 0 0 2 Fair.	Cloudy. Fair. Fair. Cloudy Fair. Fair. Fair. Fair. Fair. Fair. Fair. Fair.	236 130 74 5								
Annual,	62						S. W.														

It is proper here to observe that, in regard to the position of the instrument, times of noting, &c., in the tables of which the above is an abstract, the indications given on this subject in the "Regulations of the Medical Department of the United

States Army" have been strictly observed. Range for the year, seventy-seven. Coldest month, January. Hottest month, August. As it respects temperature, the past may be considered an average year in this locality, but in regard to weather it must be stated that the *amount of rain* and the proportion of *cloudy* to *fair* has been greater than usual. The prevailing winds also in this locality during the hot season are usually south and south-west; in this respect however the table will show a decided prevalence of east and north-east winds during the months July, August and September, 1840. This fact (which, indeed, was the subject of frequent remark at the time) is believed to have had an important agency in producing the very unusual severity and prevalence of fever, which afflicted this place and vicinity the past season, as will appear more fully in the sequel.

Diseases.—The past season as before intimated has been characterised by an unusual prevalence and severity of intermittent and bilious remittent fever. Very early in August these forms of fever assumed a grave character and became unusually prevalent, at the same time an early tendency to general prostration or, in other words, a typhoid diathesis seemed to mark the progress of the disease: emetics early, followed by mild cathartics and mucilaginous drinks, with cold affusions, blisters, and especially later in the attack, the extensive application of mustard, gained an increasing confidence as the disease progressed. It is worthy of remark here that sore-mouths, unusually protracted and obstinate in their character, often followed; nor did these follow only in cases in which mercurials entered the plan of treatment; in very many of these cases the gums would remain in their normal condition while the buccal portions of the mouth and the tongue were the seat of corroding ulcers, tumefaction and intense pain. In these cases Labarraques' liquid was found a most efficient, indeed an invaluable local application. In general the lancet, as also protracted purging, was ill borne, and it soon became manifest that an object of primary importance was to husband the general strength for a sequel of pro-

tracted debility, as insidious and dangerous in its character as it was sure to follow. Indeed, when contrasted with the degree of violence attending the invasion and progress of the attack, the period of convalescence was in every case peculiarly protracted and critical. This aggravated prevalence of fever subsided early in October, since which time up to the date of this paper, the health of the locality has been comparatively good. It is not to be inferred that the disease at any time assumed that malignant type; or ran its course with that rapidity which has sometimes characterised the prevalence of epidemic fevers in still more southern and more unfavorably located towns. The interments in the city during the four months ending on the thirty-first day of October, were one hundred and five, of which number eleven were colored persons, and thirty-five were children under ten years of age. Population as before stated two thousand and four hundred. This proportion of mortality to the number of inhabitants is believed to be at least three-fold that of preceding years at the same period. When the commercial location of this town and its rapid growth during the last two years are considered, it will readily be inferred that a large proportion of the deaths were of non-resident or unacclimated persons; this was strikingly the case; indeed comparatively few of those long resident in the locality have fallen victims to the diseases of the season, with which they have suffered in common with others.

In searching for the causes of the peculiar cast and strength of the epidemic influence of this locality the past season, we are as in most cases of the kind not fully satisfied; much we think may be set down to the fact before stated in regard to the winds coming upon us during the hot season from an unusual and unfavorable quarter—and also to the fact that the great annual or June rise in the Arkansas river occurred some four weeks later in the season than is common, and the overflow in central Arkansas was unusually great. The preceding season, to wit, that of 1839, was one of good health, though characterised by uniform and highly sustained heat

and protracted drought, so much so that many wells of the town were dry and others unfitted for use; the winter following (that of '39 and '40), was marked by no peculiarities. If we except the season in question, the past history of this place will put it in an enviable rank for health among the towns of the south-west. Yellow-fever has never appeared here, nor has cholera, only as it was imported; generally speaking there are no prevailing diseases save intermittents, which are usually of a mild grade and readily yield to appropriate treatment. Pulmonary consumption can hardly be said to have an existence, at the same time complicated pleurisies (pneumonia biliosa) are not uncommon during our winters, and are the most to be dreaded of any attacks incident to that season; scarlatina occasionally makes its appearance, and instances of chronic rheumatism are not infrequent. Once in the past history of central Arkansas a disease called the "cold-plague" had a brief and limited, but for the time a very fatal existence in Conway county, fifty miles above Little Rock, rapidly carrying off a number of the inhabitants. Two cases (answering to the above disease as it has been described to me), terminating fatally within thirty-six hours, in somewhat aged subjects and of impaired constitutions, have fallen under my observation the past season; these attacks consisted of a violent congestive chill, if I may be allowed the expression, from the almost paralysing effect of which the system was unable to rally.

Next, in regard to prevalence and deleterious agency on health and life in this place, may be mentioned, diarrhœa, dysentery, croup, cholera infantum, and dropsies. In conclusion it may be remarked that this climate is not subject to as great a variety of diseases as portions of our country farther north. Fever in its multifarious forms far outweighs all others; and it is believed that when the local causes incident to all new districts, tending to aggravate this class of diseases, shall have more fully passed away, this place will be noted for its salubrity as it now is for its beautiful and commanding location.

January 1841.

ART. II.—*Extraordinary case of Pericarditis*. By CHESTER G. BALLARD, M. D., of Greencastle, Indiana.

I have denominated the following case extraordinary from the fact that I have neither met with the like, nor in my intercourse with the profession have I had one of the kind reported to me—and after the most diligent search through many volumes of Medical Journals, and all the standard works in my possession, I am unable to find an analagous case.

About three weeks since I was called in the night to visit an orphan male child between five and six years old, at the residence of its grand-mother in this place, in consultation with the attending physican, who informed me that the child had been under his treatment for several days with the following symptoms: slight fever, coated tongue, tumid abdomen, slight cough, restlessness, and constant picking of the nose. Treatment—vermifuge medicines, calomel and Dover's powder. Under this medication the febrile symptoms had been to some extent relieved, but no worms dislodged.

The cause of alarm at this hour, was sudden dyspnœa and restlessness, which however had much abated before my arrival. I found the mucous membrane of the nose, mouth, and fauces in a high state of irritation—pulse feeble and quick, but not intermitting—abdomen very tense, without the least apparent tenderness—fluctuation distinct. I learned from the family that the child had been fretful, peevish, and sickly, since it was seven or eight months old, about which time it lost its mother. I also understood that it had been subject to severe spells of crying, at the same time manifesting the strongest indications of pain, which, when its judgment was sufficiently matured, it always located by putting its hand upon the sternum. Walking up hill, or the playful exercises of childhood always produced difficulty of breathing—appetite had been uniformly good, and bowels regular; but notwithstanding its uniform appetite and the healthy function of

all the chylopoietic viscera, marasmus had set its signet upon him, and marked him for a victim.

I gave it as my decided conviction there was serous effusion in both the great cavities, and that worms had nothing to do in the matter—and that death was inevitable. I advised the gentleman in attendance to apply an epispastic from the upper part of the sternum to the umbilicus—to give small portions of jalap and cream of tartar at proper intervals until catharsis was established, and support the strength of his patient with appropriate means if occasion should require.

Following day—blister looked fine—several dark, bilious dejections from the bowels—breathing short but easy as common—mucous irritation almost disappeared—copious secretion from the kidneys, which were torpid the night before—abdominal tension much less. After which I saw him no more until I was requested by the physician to make a post-mortem examination, which was done sixteen hours after death.

Autopsy.—When separating the cartilages of the ribs in removing the sternum, there was a discharge of about half a pint of pale yellow serum containing no flocculi—this I was prepared to see—sternum being removed, the pericardium presented itself to view, filling almost the entire cavity of the thorax, which I supposed to contain a similar fluid, but on making an incision I was surprised to find it filled with healthy looking pus, and to the enormous amount at least of two quarts. The lamina of the sac were greatly thickened, the outer one seemed completely united with the mediastinum—its attachment to the cordiform tendon of the diaphragm much extended—the lining membrane rather more pallid than natural—no lesion in its structure. The heart was natural in color, its ventricles and valves all sound, but it was soft; the softening however appeared to be nothing more than a tendency to general decay—all the muscles were flaccid. Lungs collapsed and contracted until neither lobe would measure more than two and a half inches from base to apex, and in external appearance resembling glandular bodies, and posses-

sing, when submitted to the test of the senses, about the same density as that of the spleen—they exhibited no marks of past or present inflammation, and could not, I should presume, by the greatest expansion of which they were capable, have contained more than three or at most four cubic inches of atmospheric air—the pleura on both sides possessed all the firmness and brilliancy of that of the most healthy subject. The cause of the serum in the chest was probably deficiency of absorption—as also that of the abdomen, which also contained upwards of a pint of colourless serum. The abdominal viscera were all sound.

The great singularity of this case seems to consist in three particulars, viz: the length of time the disease had existed; the serous membrane of the pericardium putting on suppurative action so perfectly; and the enormous quantity of pus secreted. That it was insidious in its character should not be thought an anomaly, for that is one of its striking characteristics. Laennec acknowledges that it is as frequently mistaken as recognised, even by himself. With regard to the slow progress of the disease in the above case, we think there is no reasonable doubt, when we consider the sickly character of the child from the time it was seven or eight months old up to the day of its death; constantly complaining of pain in the thorax, and shortness of breath following the least active exertion. An argument might be drawn with great force to sustain this position from the condition of the lungs. But the serous membrane producing such perfect purulent secretion and to such extent, is what we think the most singular feature in the case. Dewees remarks that the pericardium acts from laws of its own; this case seems to favor that opinion. The cough mentioned at our first visit, was by no means a concomitant of the chronic disease. The only acute disease with which it was ever afflicted, that of mucous irritation, was always accompanied with a slight cough.

December, 1842.

ART. III.—*Miscellaneous cases and observations.* Read before the Vincennes Medical Society, November, 1842. By DR. J. S. SAWYER, of Vincennes, Indiana.

On the 9th May, 1841, Mrs. E. was delivered of a delicate female child exhibiting the natural appearances, except a large ventral hernia. This tumour, about two and a half inches in diameter, at its base, occupied the lower and anterior portion of the symphysis pubis. The surface presented a fiery red appearance, and was covered with small elevations, resembling fungous excrescences, at the side of each of which was a small puncture. The whole tumour discharged an irritating, ichorous fluid. Its size varied with the different degrees of distention of the bowels. Fearing either ulceration or gangrene, I directed the most soothing applications, and the most scrupulous care to prevent chafing.

This being, to me at least, a novel case, I requested my friend Dr. Posey to see it, who agreed with me that nothing could be done at that time for permanent relief. As I had apprehended, the surface soon began to ulcerate, and in a short time so large an opening was formed, that a great portion of the bladder was protruded through it. It now appeared evident that the abdominal parietes were entirely wanting, and that the hernial sac itself was exposed. As to the precise nature of the connexion of the tumour at its circumference, with the integuments of the abdomen, I cannot hazard an opinion. The child during the month contracted the infection of pertusis, which, together with the irritation of the hernia, soon carried it off. A post-mortem examination would have been desirable, and might have shown the upper portion of the pubes to have been wanting. But owing to the delicate health of the mother it was not proposed.

The complaints arising from inflammation and irritation of the spinal cord, have of late attracted much attention and been the subject of many dissertations. Like most new things

this discovery has no doubt been overrated, and spinal irritation has been made to account for the production of ailments not easily explained *otherwise*—just as we denominate many complaints and symptoms nervous, which we do not understand. Believing however, that spinal irritation does not receive undue attention in this region, I shall relate a case or two which may serve to show some of the anomalous symptoms that may be produced by it. In the fall of 1840, I was called upon by a lady of my acquaintance aged about thirty-five and requested to prescribe for her. She stated that for several days she had been unable to speak above her breath, felt general debility, and particularly, a weakness of the upper extremities. She had had several attacks of this kind before, (which, like the present, had appeared without any apparent cause), for which digitalis had been prescribed and taken without much benefit. The patient's constitution had been much shattered, and she had had some years before, an attack of hæmoptysis. I prescribed an expectorant mixture of syrup of squills, antimonial wine, and elixir paregoric, which affording no relief, the patient in a short time called again. It now occurred to me that the aphonia might depend upon spinal irritation and a consequent partial paralysis of the nerves supplying the organs of voice. Finding, upon examination, great tenderness of the lower cervical and one or two of the upper dorsal vertebræ, I prescribed a blister, which had scarcely drawn before complete relief was obtained. Nearly two years have since elapsed, but there has been no return of the complaint. Sometime afterwards, I attended a lady who was subject to attacks of aphonia and weakness of the upper extremities, upon making any unusual muscular exertion. The same condition of the spine was found to exist, and the same treatment was successful as in the other case. It may be well to state that this lady has since had an attack of hæmoptysis.

It is well-known, that the phenomena of voice depend upon the internal laryngeal, and the recurrent nerves, which are

branches of the par vagum, and are distributed, the former to the epiglottis and muscles moving the cartilages, and the latter to the larynx and trachea. The spinal accessory, which with the glosso-pharyngeal, and par vagum makes up the eighth pair, takes its origin from twigs of the fourth, fifth, sixth, and seventh cervical nerves, and after uniting with the other two divisions of the eighth, is finally distributed to the muscles of the shoulder. This connexion seems to explain the production of aphonia, pain in the shoulder, and weakness of the upper extremities, from an irritation of the spine at the origin of the spinal accessory nerve.

Inflammation and congestion of the brain, prevailed to an alarming extent in some parts of the country, during the last winter. A striking feature of this epidemic, was the rapidity of its progress. I shall attempt to give some account of these complaints as they occurred within the circle of my practice, not so much with a view of saying anything new, as with the hope of stimulating other members to communicate the result of their observations and reflections. In the early part of February last, I was called to visit a boy aged about six years, the son of a gentleman who had already lost another child, after a few hours illness. He complained of great soreness of the limbs and the whole surface of the body. Lying in bed produced great uneasiness and pain, and when I attempted to examine his pulse he would cry out with anguish. The surface was most of the time cool, though in some part of the day, there was slight reaction. The skin was covered with small, smooth, dark-red points, not much larger than a pin's head. This was a case which would no doubt have been called at one time, cold-plague; and Saalmon in his account of epidemic *inflammation* of the *brain*, says, that it sometimes made its appearance with imperfect reaction, and great pain and soreness of the limbs. Considering a strong tendency to *congestion* of the brain manifested in this case, I prescribed the semicupium, blisters to the extremities, and a large dose of calomel. I did not see the patient again, but understood that the calomel did not operate for twenty-four

hours, when a large quantity of black bilious matter was discharged, with considerable amendment of the symptoms. This case might have recovered under a vigorous course of counter-irritation, and evacuation from the liver, but having no further treatment, it went on to a fatal termination. Before I left the house, the infant in the cradle was observed to be more fretful than usual. A simple prescription was made, hoping that it was not seriously indisposed, but in about thirty-six hours it expired.

In a few days I was requested to visit a boy about four years old, in the same neighborhood. I arrived about two o'clock, P. M. I was informed that he had not appeared indisposed until the morning of the same day, when he complained of his head, and growing rapidly worse, the family sent for aid. When I arrived the patient was nearly insensible. The surface was rather cool, and covered with small smooth points of a purple color—pulse small and weak. The eyes had a vacant appearance, and no impression was made upon the pupil by the approach of a candle. Considering the rapid progress of the case, and the deeply congested state of the brain, I could not give the parents any encouragement. The patient however was immersed in a warm bath, which produced great prostration. Blisters and sinapisms were then applied to the extremities and stomach, a large dose of calomel was, with much difficulty, administered, and another directed to be given in two hours if practicable. The progress of the disease was not at all arrested, and, in twenty-six hours from the time when he first complained, the patient was a corpse. Just before I left, the youngest child, probably ten months old, was observed to be fretful; but I was not asked to prescribe, and did not examine it. In six hours it died. I do not know what were the symptoms, but suppose they were the same as in the other case. The case here related I consider one of congestion of the brain; a disease which, so far as I know, is of much more rapid progress than inflammation, properly so called, of that organ.

I shall briefly relate a case of inflammation of the brain

which came under my care in the latter part of March. The patient was a little girl about five years old. She had been complaining some days before I was called, but was not considered dangerous until Thursday, when she became so much deranged as to alarm the family and induce them to send for aid. I arrived about two o'clock, P. M. The little patient could now seldom be made to answer a question, and when she did, the answer was altogether incoherent. The face was flushed, the eyes red and suffused, the pupil dilated. She would frequently rise in bed as if much affrighted, muttering inarticulately. The hands were tremulous, and the whole features indicated great nervous excitement. Vomiting, one of the usual symptoms in this complaint, was present in this case. About a dozen large worms had been thrown from the stomach. The pulse was weak and frequent. In view of the rapid progress of the case, the difficulty of administering medicine, and of the fact that the second stage of the disease was already present, I considered this case as hopeless. I however administered a large portion of calomel and rhubarb, and left several others to be given two hours apart if possible; and a strong preparation of pink and senna was directed to be given in as large doses and as often as practicable. Blisters were applied to the temples and extremities. In the evening the medicine had not operated—directed it to be continued through the night when practicable. The vomiting continued at intervals all night, and the medicine, notwithstanding the use of injections, did not operate until eleven o'clock next day, when large dark evacuations were had, together with twenty-six large worms in one knot. By this time, however, the patient was rapidly sinking, and expired about one o'clock, less than twenty-four hours from the time when I first saw her.

I propose to close these imperfect remarks with a few reflections. Inflammation and congestion of the brain, though they may arise from the same cause, yet obviously do not consist in the same condition of the brain. In other words, like causes do not produce like effects, in all systems

and at different times. The most common cause of both in this climate, is doubtless cold. This cause may, in one individual, produce inflammation in the substance of the brain or its membranes, ending, unless arrested by timely depletion, in gangrene or effusion; while in another, so great a shock is given to the nervous system that no re-action takes place, and the powers of life seem at once to succumb. Whether in congestion of the brain, the condition of that organ is essentially inflammatory, I shall not presume to decide. I believe not. In general we understand a congestion of any part to consist in an over-distention of the vessels of that part, and a sluggish motion of the contained fluid, *without* inflammation. There is no doubt that the direct effect of cold is to weaken the action of the heart. This principle, so easy of demonstration if necessity required and time permitted it, will be taken for granted, in attempting an explanation of the proximate cause of congestion of the brain. The heart being weakened in its action, the blood must necessarily accumulate in the right side of the heart and in the large veins leading to it, for the reason that the organ has not power to free itself from the burden, by filling the arteries. The blood being, consequently, imperfectly arterialized, does not exercise its natural amount of stimulus upon the heart, which tends indirectly still further to weaken its action. This state of congestion occurs to a great or less extent in the cold stage of every paroxysm of fever, but in these cases, *reaction* coming on, restores the balance of the circulation. The causes which tend to render the amount of congestion relatively greater in one organ than another, may be various; as constitutional or accidental weakness of the part, predisposition, &c. In the operation of any cause weakening, in a great degree, the action of the heart and producing consequent venous congestion, the *brain*, returning as it does so large a quantity of blood to the right auricle, *must* to a very great extent be implicated in that congestion. But when cold produces such inroads upon the nervous system, as to prostrate at once the vital energies, so that reaction cannot take place, it is but

natural that the *brain*, which is the *centre* of that system, should be the principal seat of congestion. This tendency, so natural in itself, may be increased by any source of irritation in other parts, the effects of which are most naturally transmitted by sympathy of parts to the brain. I am persuaded that in the epidemic of last winter, this source of irritation was the presence of worms. I am convinced from observation and reflection, that this cause, by producing an undue excitement in the brain, hastened the progress of the disease and rendered the fatal result more certain. Indeed, there is reason to suspect that in some cases of the kind, worms are the main cause, and the application of cold, merely a concomitant. So well am I persuaded of the mischief they produce in many affections of the brain, that I consider their expulsion as one of the first indications, in the early stage of the complaint.

It may be useful to attempt a diagnosis between inflammation and congestion of the brain. *Inflammation* is known by the general heat of the skin, the flushed countenance, the red eye, pain, generally acute in some part of the head, vomiting, early delirium, and contracted pupil. The pulse is said to be sometimes full, but generally hard and small. In *congestion*, the reaction is feeble, and in the worst cases there is none; consequently, there is little or no external heat. The face, instead of being flushed, is *pale*, or has a *darker* hue than natural. Instead of the delirium and nervous agitation, there is languor, coma, soon followed by insensibility. The pulse is weak, soft, and compressible. The period of insensibility occurs much sooner than in inflammation. There is reason to believe that the immediate cause of death in congestion, is not, as in inflammation, the process of effusion or gangrene, but the compression of the brain from over distention of its vessels or from their actual rupture.

With regard to the treatment of these complaints few words will suffice. Where they occur in a violent form, as in the epidemic of last winter, nothing less than the most vigorous course of treatment in the very onset of the disease,

can be of any avail. The misfortune is that, not apprehending danger, the friends do not call a physician until the disease has made much progress; when, even if he could always have the necessary means at hand, the stage for active depletion is past. Where however the patient can be seen in time, there can be no doubt of the absolute necessity of the abstraction of blood, though in the cases of children it must be done cautiously, as it is admitted that they do not bear blood-letting with equal impunity as adults. In inflammation, bleeding from the arm and cupping seem to answer the indication; but in congestion I think bleeding from the arm contra-indicated. Cupping the temples and nape of the neck, and opening the jugular vein appear to afford the only rational means of relief, so far as blood-letting is concerned. The next step is to remove all causes of irritation, and of these in cases of children the most important is worms. Ten grains of calomel should be given to a child five years old, in bad cases, repeated every three hours until it operates. A strong preparation of pink and senna should follow the first portion of calomel, and be repeated every hour in as large doses as the patient will swallow, until free evacuations have been procured from the whole. There should be no waiting or hesitating in this course, for when worms are present proving a source of irritation, unless sufficient medicine be administered *before stupor occurs*, to operate freely in a short time, the case will inevitably go on to a fatal termination. The calomel is always indicated, because, when it acts upon the liver producing black discharges, it derives powerfully from the head, and when worms are present it is *doubly* required. Even when no worms are expelled, the calomel, pink and senna are beneficial, because they seem to quiet them, and, operating briskly, these medicines produce the timely removal of other offending matter from the stomach and bowels. We dare not wait for the slow operation of these medicines given in the usual way, though they act more surely. A few hours brings stupor, when it is very difficult to give medicine in sufficient doses. Besides, the free operation of medicine after that time

seems to hasten the fatal result. Blisters should be applied at an earlier period than is usual in affections of the head. In all doubtful cases, if blisters are used, it should be done immediately upon the appearance of a disposition to coma. If delayed, they will frequently not act at all. In inflammation of the brain which runs its usual course, it is better to defer their application until the violence of the disease is somewhat abated.

ART. IV.—*Cæsarean Operation on a Dwarf*. By CYRUS FALCONER, M. D., of Hamilton, Butler county, Ohio.

Perfect success is not always the test of merit or skill; but it is sometimes the chief motive in reporting cases for the public eye. I am not positively sure that some influence of this kind has not prevented me from offering at an earlier date a report of the following case, which has certainly some peculiar and striking features, however barren of brilliancy in the result.

On the 6th of July, 1840, I was called to visit Miss ———, of Ross township, in the south-western part of this county (Butler), in labor with first child. The physician in attendance was Dr. Praether, an intelligent practitioner of Venice, near which village the patient resided. She had been in labor since the previous midnight; I arrived about 2½ P. M.

I was not a little surprised to find the patient a *dwarf*, just *three feet six inches in height*, with a form very illy proportioned. Her head was perhaps of normal size, and her trunk not greatly inferior in *breadth* to the ordinary standard, but longitudinally reaching little over its proportion of her diminutive stature. The left foot of the foetus was presenting at the os externum, and Dr. P. informed me he had felt the toes of its fellow; but had been unable to introduce his hand so as to grasp the foot

and bring it down. I proceeded to examine her; and carrying the finger to the superior strait, I immediately discovered a mal-conformation of the pelvis. The sacrum projected towards the pubis so as to give the superior strait the character of a *fissure*; the antero-posterior diameter being certainly not over one inch and three-fourths. The leg of the presenting foot occupied the full breadth of the fissure, affording an evidence but too conclusive that nature was not competent to the delivery. The os uteri was well dilated, and the pains incessant and severe. Carrying my hand over the abdomen I found the uterus occupying a diagonal position; the fundus extending high into the right hypochondriac region.

Her mother assured us that the mal-formation was congenital, and that she had observed the pelvic obliquity soon after birth: but from a history of the early childhood of the patient we were satisfied it was the result of *rachitis*.

What was to be done? The strength of our patient was flagging in an unavailing travail. Her delivery *per vias naturales*, was evidently impossible. Shall we sacrifice the fœtus in an attempt to save the mother? *Can* we, after awaiting its death, remove it piecemeal? These questions were rapidly and anxiously revolved in our minds. Had the head presented, its reduction and the use of the crotchet would of course have presented themselves, though had that been the case there was not room, I apprehend, for the passage of the base of the cranium. Under the circumstances, we were soon brought to the conclusion that the only hope for either child or mother was in the *Cæsarean section*. This *might* save both, without it the loss of both was inevitable; for we had not sufficient confidence in the division of the pubis to induce us to canvass its merits.

Quietly withdrawing the mother of the patient, and one of her friends, we stated to them frankly the situation of the case, and the alternatives. They were less surprised than I had anticipated, the dwarfish stature and disproportions of the girl having prepared them for something of the kind. We next communicated our views to the patient herself—she ex-

hibited but slight emotion, and promptly agreed to the operation.

We then proposed sending to Hamilton—eight miles—for additional counsel: but to this the patient strongly objected, insisting she could not endure the delay, and imploring us to proceed at once to the operation. Her mother joined in the request, and indeed we were satisfied that every hours delay lessened the prospect of a favorable result. The most propitious time, according to all writers on this subject, I believe, had already long since passed.

The operation resolved upon, we set about preparing for it. Ligatures, adhesive strips, lint, compresses, and a broad bandage were arranged ready for use. The instrument selected was the common scalpel.

Placing the patient upon her back on the bed which she was finally to occupy, with the lower extremities partially flexed, and having the walls of the abdomen compressed by assistants, so as to fix the uterus and prevent the escape of the omentum or intestines, I proceeded to make the first incision. In order to make myself understood I will repeat that the fundus of the uterus extended high into the right hypochondrium, overlapping, and to a considerable extent, dislodging the liver from its position. It was necessary to make the incision somewhat oblique, beginning at the upper part, near the right margin of the *linea alba*, and crossing towards its centre in the descent towards the pubis. The usual direction is to commence below the umbilicus: but in this case the shortness of the abdomen made it imperative to begin considerably higher up, in order to get an opening large enough to extract the foetus. This case seemed to me a wonderful illustration of the capacity of nature to adapt herself to circumstances, however straitened. The liver and stomach appeared to be crowded entirely out of their proper location, pressing of course, in turn, upon the diaphragm and other viscera, and yet the functions of animal life had been but little disturbed. With the first sweep of the knife, I divided the abdominal integuments to within an inch or an

inch and a half of the pubis, exposing the aponeurotic expansion which forms the linea alba, the whole distance: this was then carefully divided, and the peritoneum presented itself. Making a small orifice in this latter membrane at the upper extremity of the incision, I inserted a couple of fingers and slightly elevating them divided it; the fingers acting as a director, and protecting the parts beneath. At this part of the operation, much difficulty was experienced in preventing the escape of the intestines. The uterus was opened, observing the same caution as with the peritoneum, and the fœtus was exposed, its back presenting to the incision. Although I began my incision considerably above the umbilicus, such was the relative size of the child that I found it impracticable to extract it, until I had extended the opening in each direction; approaching nearly to the cartilage of the lower true rib above, and the pubis below. During my efforts to accomplish the delivery, considerable extravasation took place. The relative size of child and mother can only be conceived by the reader, when he remembers the height of the mother— $3\frac{1}{2}$ feet—and learns that the child was about the ordinary size, weighing, by conjecture, from seven to eight pounds.

I at length succeeded, by grasping the thighs in elevating the breech, and delivered the child, as in a breech presentation; it soon cried lustily, and was separated from the cord. The uterus now contracted powerfully, the placenta was expelled, the extravasated blood removed as much as possible, and we then proceeded to dress the wound.

Four or five points of the interrupted suture were employed—long adhesive strips were applied between the sutures, leaving a space at the lower portion, for the escape of any discharge that might accumulate. A broad compress was next applied, and the whole covered with a broad firm bandage tolerably tight.

During the operation, the patient made very little complaint; she now said she felt very comfortable, and expressed much gratification at being relieved by an amount of suffer-

ing, so much less than she had apprehended. An anodyne was administered, and finding her at the end of a couple of hours still comfortable and inclined to rest, I left her, and rode home, solacing myself with the pleasing hope of a favorable result. Ere morning, however, inflammation began to be developed. On visiting her next day, I found the tongue white, the pulse quick and frequent, the abdomen swelled, tympanitic, and tender, great thirst, with all the evidences of a high degree of inflammation. Dr. Praether residing near her, saw her frequently; but it is not necessary to detail the treatment, which did not differ from that usually pursued in inflammation of the abdominal viscera. She died on the eighth.

The child did well, and is now a vigorous healthy and well formed little girl.

An additional link in the chain of sympathy excited in my bosom for the luckless subject of this notice, was the fact that she was the victim of a human fiend, *in the shape of her own uncle!*

A word as to the proper time of operating and I have done. Cæsarian section must necessarily be an exceedingly rare operation in any country, and more especially in the sparse population and well-formed pelves of *our* country. This infrequency, with the want of observation and experience which flows from it, will ever tend to produce hesitancy and indecision in the minds of the medical attendant, and will probably very often delay the operation until the most eligible time has gone by. The fear of censure will doubtless sometimes throw its weight into the same scale; for it is unfortunately true, that there are many in our profession who will find fault with the practice of a rival brother, whenever it is practicable to do so. In *this* case it has been said we were too precipitate, and should have had additional counsel. But in fact the delay already had, was very possibly a cause of the unfortunate result to the mother. The unfavorable termination of nearly all the earlier cases of Cæsarian operation in Eng-

land, is attributed chiefly to the late period of labor when the operation was resorted to.*

The continental writers, amongst them *Graefe* and *Baudelocque*, unanimously assure us that the proper time for the operation is before the waters have been evacuated, and just so soon as the os uteri is sufficiently dilated to permit their free discharge. In this opinion *Dewees* concurs; and no doubt such is the proper course where election as to time is within the control of the attendant. *Sabatier* says, "There ought not to be too much delay, lest the patient's strength be exhausted, and the violent efforts of labor should bring on an inflammatory state of the parietes of the uterus."

March, 1843.

ART. V.—*On the Use of Cathartics in Retention of the Placenta.* By Dr. THOMAS H. TODD, of Lincoln county, Tennessee.

Although much has been said and written on the subject of retained placenta, yet we have much to learn about it, as indeed about many things in every other branch of medicine. It is not my design to write an elaborate dissertation upon this topic. My aim, in the remarks that I shall make, will be, to direct the minds of practitioners to a certain class of remedies which have heretofore, so far as my information extends, been overlooked, or entirely neglected by the practical accoucheur. I must therefore refer the reader to the standard works upon obstetrics, and to the numerous essays contained in the medical journals, for a full account of the subject, and the general management of such cases; while I shall confine my remarks to the therapeutic agency of *cathartic medicines*, as a means of expelling the secundines under certain circumstances. Why cathartics have so long been overlooked

* Vide *Hull's letter, Denman, et al.*

and neglected by the profession, is really matter of much surprise to me; for we cannot peruse the writings of any one upon this subject, without being able to glean abundant evidence, that goes conclusively to establish the efficacy of this class of medicines, in rousing up the dormant energies of the uterus. And they will do this, independent of any particular irritation or excitement which they may produce upon the rectum. The older writers on midwifery discovered that there was an intimate sympathy existing between the rectum and uterus, and that any undue excitement in the former, was readily communicated to the latter organ: hence, they early learned the efficacy of stimulating injections in cases where they desired uterine contraction. To the correctness of this fact all subsequent writers have testified. But why this discovery should forestall all further research and inquiry, respecting the sympathy that might exist between the uterus and the bowels, instead of leading to it, is a problem that I shall leave for others to solve. In the meantime, however, I shall endeavor to prove that this sympathy is not confined to the rectum, but extends to the whole alimentary canal.

All writers in treating of the diseases of the pregnant female are unanimous in cautioning us in the use of cathartics, lest, say they, the use of this class of remedies should excite the uterus, and thereby produce abortion. Now it is well known that *drastic cathartics* when carried to excess, are prone to excite the rectum, and to produce tenesmus; but that all purgative medicines, when not carried too far, will produce this effect, no one will hazard his reputation by asserting. The late Dr. Dewees says: "The pregnant woman does not bear purging so well as one who is not so, and if this operation be carried very far, there is a risk of producing abortion." In speaking further upon this subject he says: "We suggest a caution in the choice of purgative medicines; all such as act with great force upon the bowels should be avoided; as all such as are classed among the drastic purgatives, as scammony, gamboge, colocynth, aloes, &c.; because each of these produces, during its operation, great irritation

and very frequently excites tenesmus. It is this *peculiar irritation* which renders any cathartic unsafe which may produce it; no matter to which class of cathartics it may belong; for if castor oil, magnesia, or any other mild cathartic were to produce this effect, it would be equally improper, as any of the drugs proscribed above.”

The foregoing quotation serves to show that any purgative will sometimes produce uterine contraction: but Dewees thinks it will only do so, by first producing a *peculiar irritation* upon the rectum. He has not, however, attempted to prove that castor-oil, magnesia, or any other mild cathartic, ever does produce this peculiar irritation upon the rectum, when used in moderation. There is no one who appreciates the opinions of eminent men, and those in high places, more than the writer does; but before we admit them as maxims in science, we ought at least to examine the premises upon which they are founded. That uterine contraction, when there is a predisposition in this organ, frequently follows, or accompanies the action of the bowels produced by any mild purgative, is manifest to all who have been in the habit of observing their effects upon the parturient female. I see nothing connected with the uterus, and its sympathies, but what goes to corroborate this fact. When the uterus is predisposed to contract, as it always is during the retention of the after-birth, we see this action excited by the slightest causes, as gentle traction upon the cord, friction over the abdomen, the application of a cold or wet hand, &c. After observing the effects produced by such slight causes, why should we be so incredulous as not to believe that an action upon the bowels, sufficient to cause them to throw off their contents, could not make an impression upon so excitable an organ as the uterus is at such times, independent of producing any particular irritation, or tenesmus about the rectum. Denman, in speaking of the causes of abortion, says: “The sympathetic causes of the action of the uterus may arise from the disturbance of any part, with which the uterus is connected, or disposed to consent, as is the case with *all the contents* of the

abdomen.” Again he says; “Pain in the stomach, or bowels, or any part contiguous to the uterus, or with which it is prone to consent, may disturb it; and if extremely violent, or of long continuance, may produce the same effect.” And again he continues: “Such medicines as exert a violent action on the stomach or bowels, will, upon the principle formerly mentioned, frequently excite abortion; and very often are taken designedly for that purpose.”

In the American Journal of the Medical Sciences (vol. 26, no. for May, 1840), Dr. Edward Warren, of Boston, has written a valuable paper on retention of the placenta. His aim is to prove, by correct data, that there is less danger in delay, in such cases, than in the violent means generally resorted to, for the speedy removal of the secundines. Among the cases cited in this essay, are the two following, taken from a report of Dr. Lee's: “In the seventeenth case, the woman was delivered of a child at the sixth and a half month. The cord had been broken off by the midwife, and the parts were so much contracted that the hand could not be introduced without too much force. The following morning a brisk cathartic was given, and in the evening the placenta came away whole, without any help, and with no bad result. In the nineteenth case, the patient had been delivered of a dead child, of six and a half months, twenty-four hours before Dr. Lee saw her. An attempt to withdraw the placenta failed. The next morning a cathartic was given, which excited vomiting and purging, and during its operation the placenta came away in a yellow indurated state—no bad symptom followed.” This case is directly in point. In case seventeenth, a brisk cathartic was given in the morning, and the placenta came away in the evening; by which time, the cathartic must have been operating. I have very little doubt that the cathartic excited the uterus in this case, although the Dr. tells us it came away whole without any help.

During my residence in Starkville, Mississippi, the following cases came under my own observation:

Case 1st. A woman aged twenty-eight, the property of

Richard Ellett, was delivered of a living, and *first* child. The labor was tedious, and the patient much exhausted in consequence. After the child was removed, I examined the parietes of the abdomen, and found that the uterus had contracted firmly; but the tumour was high up in the right side. As there was no hemorrhage, I used friction, and pulled gently upon the cord only, for the first few hours. I then passed my fingers along the cord to ascertain if the placenta had been detached and thrown into the vagina; but it had not, as I was unable to touch any part of it. I then administered the ergot, with the view of exciting uterine contraction, and thereby relieving the patient; but in this I was disappointed, as the ergot produced no effect. After this failure I thought it best to introduce the hand and remove the after-birth, but here again I was doomed to meet another disappointment; as the soft parts had by this time contracted so much, that any attempt to introduce the hand, however slow and firm it might be, entirely failed. I now resolved to give a dose of oil ricini, as the bowels had not been moved since the labor began, and to wait the result. In due time, however, the oil acted, and with the action of the bowels the pains returned, and threw the secundines into the vagina, where the mass was readily seized, and removed with the hand twelve hours after the birth of the child.

Case 2d. Prissa, servant of Mr. Hines, was delivered of a still-born child near the sixth or seventh month (in September, 1839). On examination twelve hours after delivery, I found that the cord had been broken off in attempts to remove the after-birth. The parts contracted so much that the hand could not be introduced; and the ergot had been given but produced no effect. As the bowels had not been moved, I advised that a dose of castor-oil should be given, and its operation waited for, as there were no unpleasant symptoms in the case. By evening the oil had operated two or three times, without producing any pain whatever. I now made an examination, but found that the placenta had not advanced any. As the patient was resting well, we resolved to leave

the case for the night to nature. At 10 o'clock next morning we gave a dose of pills containing equal parts of calomel, rhubarb and aloes. At 6 o'clock, P. M., I was sent for in great haste; the woman was in much pain and her mistress much alarmed. Soon after my arrival the pills acted upon the bowels; and with the first evacuation the placenta was expelled, forty six hours after the birth of the child.

These two cases were communicated to the editor of the American Journal of the Medical Sciences, and published in vol. ii (new series) no. 3, for July, 1841; with the following paragraph by the editor: "The well known sympathy between the rectum and uterus, explains the action of purgatives in exciting the uterus to expel its contents." This paragraph is a fit illustration of the influence that preconceived opinions and prejudice always exert over the minds of men. Now, if there is any thing, in either of the cases related above, that could lead us to conclude that there was any preternatural excitement, or tenesmus, in the rectum, it is hidden from the writer. In the first, the bowels had not been moved previously by any medicine, and oil was used on the occasion. In the second, the bowels had not been operated upon for the last twenty-four hours, and the placenta was expelled after the first evacuation.

Case 3d. I was called, in November, 1840, to see a woman the property of Richard Barry. She had been delivered twenty-four hours before I was called. The placenta had not been delivered, and the cord had been broken off by the midwife. The soft parts were so much contracted, and so tender to the touch, that I could not introduce the hand, without using too much violence. I gave ergot in full and repeated doses; but without producing any effect upon the uterus. As the bowels had not been opened, I gave a dose of Cook's pills. By evening they operated, producing considerable pain in the uterus; but to make sure work, I resumed the use of the ergot at this time; and in a little while the placenta was expelled. No unpleasant symptoms followed.

Case 4th. This case I did not see, on account of my own

ill-health at the time. The patient, however, was my immediate neighbor, and was treated by my brother, J. J. Todd, M. D., of Starkville, Mississippi. Mrs. F. a delicate female, and the mother of one child, miscarried in July, 1841, between the fifth and sixth months. The after-birth could not be delivered at the time, although ergot was used for that purpose. Next day the cord was broken off, in unsuccessful attempts for its removal. A purgative had been given to open the bowels, and when it acted, ergot was again used, but without producing any effect. As the case was not attended with any unfavorable symptoms, no rash means were resorted to. Early on the third day however, during the action of her bowels from a purgative dose of medicine, the placenta was expelled—without any help, as some writers would say. No bad symptom occurred afterward.

It frequently happens, that all remedies that can be brought to our aid, fail; and the accoucheur has at last to leave the case almost entirely to the efforts of nature. Friction and pressure upon the abdomen fail, ergot fails, traction upon the cord fails, the hand cannot be introduced with safety, injections do not relieve, nor will instruments answer our purpose. And yet suffering humanity calls incessantly upon us for relief. Under these circumstances we ought surely to search out, and call to our aid, each and every remedy that will tend to relieve the patient, without any detriment. Purgatives, to say the least for them, certainly exerted a salutary influence in the cases above mentioned, and that, after all other safe means had been resorted to without success.

March, 1843.

Selections from American and Foreign Journals.

Presumption of Survivorship.—By Dr. KRUGELSTEIN. The cases in which the presumption of survivorship may arise, are the following. 1. When mother and child both die during delivery. 2. When many persons perish at the same time, as under the ruins of a falling building, or in a sandpit, or by an earthquake, or by the fumes of charcoal; or when many perish at the same time by shipwreck, or in drowning, when hurled together into an abyss; destroyed in a conflagration; simultaneously poisoned; dying at the same time from wounds; from hunger or from cold.

A. On the presumption of survivorship, when the mother and child die during delivery, two cases may arise. 1. The mother dies during delivery, without bringing forth the child. Here there may be a legal question, whether the right of inheritance of the child, though living, but not born, could be transferred to a third person.

2. The mother dies during delivery, and after her death, the child is born and found dead, no one having noticed its delivery.

In the first instance, it must be previously ascertained what was the cause of the death of the mother, and what the presentation of the child. If the latter is natural, and the parts exhibit mechanical impediments to delivery, and the mother died suddenly of a nervous affection, then the presumption is in favor of the child surviving. Opposed to this, in the opinion of Jörg, is the case cited by him, of a robust and remarkably healthy peasant woman, who for several weeks previous to the full time, suffered under *eclampsia gravidarum*, and during one of these convulsions, without its being noticed by any one, brought forth a dead child, with the placenta. He remarks, however, that *eclampsia* usually attacks only healthy, muscular, and especially full-blooded women; and that

the probability of the death of the fœtus, either before or during delivery, is increased according to the length of time that the mother has been suffering under the disease.

But if the position of the child be unnatural, and especially if the funis has protruded, we may assume (and above all, if the pains have been violent) that the mother died after the child.

In the case of a child full grown, and capable of living, born after the death of the mother, the proof by examining the lungs is conclusive as to its life. But if we find on it no signs of maturity, or of intra-uterine life, the presumption is in favor of the mother surviving, and particularly if there be marks of putrefaction in the fœtus.

B. When many persons are destroyed at the same time, the first inquiry is as to the cause of death, whether by suffocation, hunger, thirst, or wounds.

In cases of suffocation, we must notice the age, condition of body, sex, and the position of the dead. In reference to age, children and young persons survive old ones. Thus, in the earthquake at Calabria, a man and his wife, with their child, were entombed by a falling house. On being dug out, the parents were found dead, and the girl alive. The nearer the individual is to the age of childhood, the less is the necessity for respiration; and hence, persons of manly age, and if not asthmatic, but of sound lungs, survive the aged.

In reference to the condition of the body, the most important point is the state of the lungs. A person with sound lungs will easily outlive another, whose lungs are indurated or suppurating, since an unfrequent, but perfect inspiration suffices to preserve for a time, the functions of the lungs, while a short and confined one does not convey sufficient air to them. In reference to the situation, we assume, that those have died last, to whose lungs the access of air was in some degree possible.

But the possibility of obtaining respirable air, depends often on very different and apparently opposite circumstances. In a conflagration which broke out in this city (————) in 1808, two persons by the ruins falling down before the door of the cellar, were enclosed therein. One was an old man of seventy, and asthmatic, the other a very healthy person, aged about forty. The latter stood upright, and was near suffocating, in consequence of a fine smoke, which penetrated into the cellar and filled the upper half thereof; the old man, on the contrary, who had sat down on the floor, experienced nothing of this inconvenience. A man, who with his daught-

ers and his mother aged seventy, retired into a cellar, on account of fire, was suffocated with his children; while his aged mother was taken out the next day, half dead, gasping for air, but recovered and lived some years thereafter.

The nature of the masses which cause the entombment produce various effects, while the wounds depend on the masses causing them, the height from which they fall, and also the position in which the injured parts are. If large and heavy masses, ruins of walls, rocks, beams, stones, &c., fall upon the body, although the external wound may not appear severe, yet on dissection, we shall find the large blood-vessels, and the heart itself lacerated, and as the extravasated blood stains the parts, it is very difficult to decide whether the living man or his recent corpse was injured. Yet in the last case, the countenance is composed, or certainly not so distorted, as when a man has died in great terror and pain, and receiving very severe wounds.

Masses which do not cohere together, as earth, sand, rubbish, &c., press together the injured parts heavily, without generally breaking them. They also separate the extremities from the trunk, while they press on the space between, as, for example, between the arms and body. In the case of a female overwhelmed in a sand-pit, I found the body so much compressed, that it had scarcely half its natural thickness; besides this, however, there was no external injury observable. Occasionally portions of the falling masses press upon the openings of the softer parts, as in the eyelids, mouth, &c. The abdomen will be pressed together, and the contents of the intestines and bladder forced out, and sometimes even the contents of the stomach will be driven out through the mouth and nose.

Should we find such persons in various situations and positions, and in which it is evident that the deceased could not have been placed after death, as with the extremities drawn from the body, the arms upraised, or resting like the feet on the ground, or if we find under the finger nails, sand, &c., as if the sufferer had endeavored to extricate himself, or if some of these foreign substances are seen in the mouth and wind-pipe, it is beyond a question that such an one must have survived another, on whom these marks are not found.

It was remarked of those who were entombed by the earthquake in Calabria, that the last position at the moment of death, of males, was an exertion of all muscles, in apparent struggling; while that of the female sex exhibited marks of the wildest despair. The latter, particularly, had their hands

clasped above their heads. But when there were any children with the mother, she evidently thought only of protecting them, and with her own body endeavored to ward off the danger. The father, on the contrary, seized his child and then opposed himself to it. Thus at Polestina, a mother with her two children, one a boy of three years old and the other an infant of seven months, was found. The infant was pressed to her breast, while her body was bent over the other, so as to oppose her back to the falling ruins. She held both children firmly inclosed within her arms, and in this position was found under the ruins.

The following case was submitted for the opinion of Pyl. Two married persons had gone to bed in good health. The woman had, however, been for some months feeble, and suffered frequently from faintness and headache. In the stove was found some charred oak wood, there was also an extinguished lamp in the room, but no smoke or vapour could be discovered, although the ventilator was closed.

Both were found dead, and as was supposed, from the fumes of charcoal. The relatives raised a suit about the estate. Those of the husband contended that he must have survived, as he was of a robust constitution, and thus resisted the deleterious effects of the charcoal fumes longer than his feeble wife. Besides, his body was found warm in bed, while hers was cold. On the other hand, the friends of the wife objected, that it was not by any means certain that in all cases the weaker would yield sooner than the stronger. The body of the husband was probably covered with the bed-clothes, and thus preserved its heat, whilst it was ascertained that that of the female was naked. They relied, however, principally on the fact that the wife was only 20 years old and the husband 21, and hence she, as the younger, must have survived.

The following were the appearances externally and on dissection. Both were found in the bed, the woman with folded hands, and body stretched out upon her back, while from the mouth issued a very fetid and rather bloody froth; and from the parts of generation light red blood, which also stained the bed-clothes. The husband lay near her also stretched out, but the upper extremities were stiffer, and his fingers drawn together convulsively. A blackish froth issued from his mouth. All the depending parts of the body in each was of a black and blue color, but in neither could any mark of wound or injury be discovered. The color of putrefaction was present, but the outer skin was firm.

On the dissection of the female, the abdomen was found

greatly distended; the intestines exhibited some livid spots; the stomach was much enlarged, its upper part inflamed and the blood-vessels swollen, while the inner surface contained large black spots of the size of a dollar, on which the villous coat was abraded. The impregnated uterus was inflamed on its surface. The lungs were pale and collapsed, and in them and in the heart the blood was small in quantity, but frothy, black, and fluid. The blood-vessels of the brain were greatly distended with black, thin blood.

In the husband the appearances were similar, but more marked. There was more serum in the abdomen, and the stomach was more inflamed. The liver dark colored, contained much fluid, frothy blood. The lungs were more swollen, here and there discolored, and the vessels full of blood. The heart contained more blood than in the female, but the condition of the brain was very similar.

The opinion of Pyl is to the following effect: While all cases of this description are extremely perplexing, and it is indeed impossible to arrive at a conclusion with absolute certainty, the difficulty is here increased by the fact that the period of death in these persons is uncertain, and that both, when found, were already stiff and cold. Their appearance was that of ordinary sleep, neither their countenance nor their limbs were distorted, and it is hence highly probable that both were deprived of life at the same instant. They were apparently suffocated during sleep, or otherwise we should have noticed some indication of an attempt to restore themselves. A few minutes at the most could have intervened between their deaths, and from the examination, it would appear that the effects on the husband were the most rapid and decisive, as shown by the state of the heart and lungs. Still, as the woman was the weakest, and was subject to faintings, she may have died first. In fine, it is impossible to answer the question in a positive manner.

Our author objects to this indecision, and remarks that Pyl should have made a distinction between the various effects of the fumes of charcoal, as they either first attack the brain and cause faintness and apoplexy, or else suffocation (choking rheum). Now, on the body of the wife, no marks of the latter were discovered, whilst they were on that of the husband, and the probability therefore is that the wife died first.

Metzger has also noticed this case, and declares that he would have decided for the earlier death of the wife.—*Amer. Journ. Med. Scien.*, from *Wildberg's Jahrbuch der Gesammtén Staatsarzneikunde*.

(*To be continued.*)

Poisoning by Snails.—A family of peasants living in the commune of Clermont, near Toulouse, fell a sacrifice to poisoning by snails. The physician who attended them communicated the details to the 'Journal de Toulouse:'—'From what I collected concerning the circumstances which preceded the disease, and those which accompanied it, and from the symptoms which I myself witnessed, I had no difficulty in recognizing a case of poisoning like those occasioned by narcotico-acrid vegetables, such as belladonna, hyoscyamus, thorn-apple, &c. No doubt remained in my mind as to the cause of this terrible disease, as soon as I knew that the snails eaten had been collected in the bushes called in French *redout*, but in the patois of the country, *roudout*. Every one knows that the leaves and young shoots are a poison to the domestic animals which browse on them, and that they kill them, after causing giddiness, and a kind of epileptic attack; but a fact which is not known is, that the flesh of these animals may occasion the greatest danger, and even death itself. Symptoms like those which I have just witnessed are rare; but it is common to see among our peasants indisposition caused by snails, which comes from their eating them as soon as they are gathered. The example of the ancient Romans should be followed, and these animals should not be brought to table until they have been kept six months or a year, feeding them with bran and wild thyme. This is the way also to make them fatter and more savory.—*New York Lancet*, from *Gazette Medicale*.

Electro-Magnetism in a Case of Poisoning, with Suggestions for its application to still-born Children, and some forms of Disease.—By THOMAS S. PAGE, M.D., of Valparaiso.—A. T., an Englishman, the subject of this communication, aged twenty-two years, and of robust frame, is a clerk in one of the most respectable commercial houses in Valparaiso. He had a slight gleet, for which he prescribed himself pulverised cubebs of doses of half an ounce, night and morning, and experienced from them neither good nor bad effects. On the night of the 16th of March, 1842, he went to an apothecary's shop and asked for cubebs. Not having confidence in the lad in attendance, he requested permission to examine the label on the bottle, and read thereon "Pulv. Cubeb." He then ordered an ounce, divided into two parts, and with these returned home at midnight. He immediately took one of the

powders, placed himself in bed, and, as was his custom, took up a book to read, but, as he expresses it, had not read two lines before he felt a dizziness and inclination to sleep. I accidentally discovered him the following morning about twelve o'clock with these symptoms: face red and swollen; lips dark-purple; mouth containing a viscid frothy saliva; tongue has a dry and chapped appearance in the centre, and the teeth are slightly coated with a brown sordes; veins of the forehead and temples turgid; eyes rolled upwards, injected, and their pupils contracted to a point; skin moderately warm and moist, with clammy perspiration; feet cool; pulse very slow, moderately full, and dispersed by the least pressure; respiration very slow, short, and gasping. By agitating him violently he was aroused for a moment, uttered some incoherent expressions, and sank back into comatose sleep.

These were the symptoms when I first saw him. Dr. Houston of the Royal Navy, now practising in this place, and Dr. Barrabino, of the U. S. Navy, then attached to the U. S. schooner, *Shark*, came to my assistance. We administered the sulphate of zinc as an emetic, and hot mustard and water to arouse the sensibilities of the stomach to its impression. Large draughts of this, and titillation of the fauces, produced vomiting, and a small quantity of the powder apparently was brought up. The stomach pump was at hand, but as vomiting was readily provoked, it was not used. The patient was made to sit on the edge of the bed with his feet hanging in a tub of almost boiling water strongly charged with mustard. One cup was applied to each temple, and about two ounces of blood abstracted. Large sinapisms were spread over the chest and stomach and inner parts of the thighs. A very strong liniment of ammonia, cantharides, and turpentine, was applied to the whole length of the spinal column, until the skin became very red and inflamed. When the stomach seemed to be cleared of all traces of the poison, the mustard draught was suspended, and a large quantity of olive, with castor oil, administered, but only a part remained. The patient now appeared to be sinking. The surface was cold and covered with a damp sweat; the face was pallid, with a purplish tinge; the jaw and eyelids were fallen, when the patient, by powerful sternutatories and severe blows on the face and shoulders with the open hand, was with difficulty made to rise. Ammonia and brandy and water were now given, with light broths, and an injection composed of turpentine and ammonia. This produced a slight discharge from the bowels. The stimulating liniment already mentioned was repeated to

the spine and over the surface of the body. The pulse was hardly perceptible at the wrists, if, at times, it was at all to be felt. The stimulants were continued.

It was now 3 p. m. There were no signs of reaction, and the features wore the aspect of death. Under these discouraging circumstances, and when every effort seemed vainly expended, we now determined to dress the patient and supported by two strong assistants, to take him from his room, continue the stimulants and light broths, and endeavor to walk him in the cool air. At first he made feeble but unsuccessful efforts to direct the movements of his legs, but at length could not be aroused, made no effort to stand, and sank almost lifeless into the arms of his assistants.* He was carried to his room and placed in a slightly reclining posture on his bed. His breathing was now short and hurried; his mouth wide extended and jaw fallen; nothing seemed capable of arousing him; the exhaustion was extreme; the pulse could be felt feebly at the wrist, maintained there probably by the agitation which he had just undergone. Dr. Houstoun had left at a short time previous, Dr. Barrabino remained with me.

It was now 4 p. m., and worn out with fruitless efforts we desisted entirely from farther exertion. At this conjuncture I thought of my electro-magnetic battery, and proposed its application to bring about reaction, for I felt we were justified in such desponding circumstances to make it a matter of experiment. Cerebral congestion was urged as an objection, but admitted not to be sufficient, in such a desperate case, to set aside the experiment. It was immediately tried, and with the happiest results. With an assistant rapidly rotating the wheel, I applied the balls at first to each side of the neck, and ran them down behind the clavicles. The arms and body now moved convulsively, but the patient lay as unconscious as before. I now passed one ball over the region of the heart, and the other to a corresponding point on the right side. In an instant his eyes opened widely, and with a ghastly expression of countenance; his head and body were thrown convulsively towards me, and he groaned. He now sank back into his reclining posture, and he was again asleep. The balls were re-applied in the same situation with similar results—a third and fourth time, and he cried, “No more.” Reaction was now positively established; the heart had received a

* Broths and stimulants were poured into his mouth, but he could no longer swallow them.

strong impulse; the pulse was becoming rapidly developed, and the whole surface warm.

We now determined to desist, and watching him attentively, allow him to remain quiet for an hour. Reaction continued satisfactorily, and when the hour had expired he could be awaked by shaking his body and calling loudly his name. There was no further occasion for the battery. He was aroused at intervals; and at eleven o'clock in the evening was sufficiently awake to relate where he had got the medicine the preceding night, but was still drowsy, and when not disturbed inclined to sleep. Thus he passed the night, and on the following morning was pretty well. He then told me that he had heard many things the preceding day that were said by persons about him, but he neither felt the power to open his eyes nor move his tongue to speak, although up to 3 p. m., when powerfully agitated and spoken to, he would reply in short and sometimes broken sentences, and occasionally correctly. He further says that the last thing he has any recollection of was my remark. whilst they were attempting to walk in the corridor, that nothing more could be done but to make the experiment. From that time all was blank to him, until, as he expressed it, "he felt as if a gun had been fired off within him, which thrilled through and shook him to the very extremities." This was the application and effect of the electro-magnetic battery.

I have said that cerebral congestion was thought at the time to make the application of the battery in such cases objectionable. The result proved the incorrectness of this opinion, and sustains this argument in favor of the practice adopted, viz:—By observing the phenomena of diseases a relation may be remarked between some of them in their earlier stages, whose terminations and consequences are quite dissimilar; apoplexy and epilepsy furnish an example. In both there is great cerebral congestion. The former generally terminates in effusion, and paralysis is the consequence; the latter terminates in spasms, and the patient returns to his usual health. Therefore it would seem that the muscular spasms equalise the circulation, and thus unload the brain; or, if we might suppose epilepsy to depend upon a determination, if I may use the expression, of the nervous principle to the nervous centres, the latter are relieved by throwing it off upon the nervous extremities, occasioning thereby spasm. Viewing these vital actions as the efforts of nature to relieve organs from the effects of undue accumulation, and restore

the equilibrium in the nervous and vascular systems, it appears probable that severe narcotism of the nervous centres may be diffused and shaken off by the revulsive action of the battery on the nervous branches, and that the consequent developments of vital action would give an impulse to the general circulation which might relieve the cerebral congestion.

A question might arise as to the power of the medicine taken to destroy life. On this point the melancholy death of Mr. C., a French gentleman, late of this place, who took the same medicine and in the same quantity but a few weeks previous, affords convincing testimony. In illustration of my subject I asked Dr. Cazentree, a French practitioner of this place, and the physician of Mr. C., for an account of the circumstances attending his death, and the autopsy, which he very politely communicated as follows:—

“Mr. C. was afflicted for some time with a gonorrhœa, for which, without medical advice, he took balsam copaiva, even in large doses, but to no effect. He was now attacked with orchitis, and for the first time came to consult me. After eight days of constant attendance the swelling which existed in the left testicle disappeared, but the blenorrhagia returned with more force. Vexed with this he again wished to take remedies which might relieve him at once of this afflicting disease. I recommended the use of the cubebs, which, taken for nine days, and gradually augmented to two drachms three times a day, had almost completely taken away this obstinate affection, when, on the 13th of February, not having any of the remedy left, he sent the same recipe to the nearest apothecary’s shop.* At ten o’clock at night he retired to his bed-chamber well and cheerful. Without consulting any one, on lying down he took half an ounce of cubebs. No noise whatever was heard during the night, and at seven o’clock the following morning, when they entered his bed-chamber, they found him in a state of insensibility. Half an hour after I was with him, assisted by Dr. Veillon, and we found him in the following condition:—

“The body is in a state of supination; all the senses are extinguished, without hearing, speech, or movement; the eyelids are fallen, and when raised the eyes look cloudy and fixed; the pupils are dilated; extremities flexible; they obey the hand which raises them, and fall like an inert body; heat nat-

* He had previously got the cubebs at another shop, but on this occasion purchased it at the same shop where my patient subsequently procured his.

ural and equally diffused; face red; there are colored, blackish spots on various parts of the body, but principally on the back; when the body is moved a species of strong rale is heard in the bronchia; pulse slow, feeble, and very irregular; respiration hardly perceptible. Not knowing to what to attribute a state so suddenly produced and so grave, and recognising by the symptoms the appearance of asphyxia, and thinking he might have taken too strong a dose of the medicine, Dr. Veillon and myself proceeded in consequence to extract from the stomach the cubeb that it might yet contain, and to cause reaction by the most powerful excitants. But all was in vain, and at twelve (noon) life was completely extinct. Nothing now remained but to make the autopsy, which we did the following morning at seven o'clock. All the cavities and organs were examined with the greatest care.

“Exterior.”—The face is pallid, the integuments livid, principally behind, and the corpse rigid.

“Abdomen.”—The stomach with no trace of inflammation, contains a tumblerful of liquid, in which is observed a little of the powdered cubebs, mixed with some aliment, which is almost digested; the intestines are sound and healthy; the bladder is full of crystalline urine; the liver, spleen, and kidneys are full of black and fluid blood.

“Thorax.”—The lungs are excessively engorged with blood, and when cut into with the knife this flows with a great abundance of froth from the bronchia; the left side of the heart is entirely empty, the right full of blood; the aorta and all the arterial system is entirely empty; the venous system of the thorax and abdomen, as well as the pulmonary artery, the vena cava and portæ, are full of black and fluid blood, which flows abundantly as soon as the vessels are divided.

“Head.”—The veins of the brain are also congested, but the congestion of this organ is not as great as that observed in the thoracic and abdominal viscera. I repeat, that in no part was there red or coagulated blood found, but always black and fluid, and filling all that appertained to the venous system.”

Before closing this subject, I would beg leave to add my impression that electro-magnetism will not only be found a most useful agent in cases like the above, but in some forms of disease, particularly those of a highly congestive character, where oppression of the organs and the nervous system prevent reaction and speedily destroy life. I need not occupy space in adducing cases illustrative of my meaning. In prac-

tice I think we frequently see cases where death seems to be caused by an *obstruction* of the functions or organic movements which support life, more than by an *exhaustion* of the organic functions or of life itself. And in such cases electro-magnetism might communicate an impulse which would renew those sympathetic actions between the organs (if no positive lesion exist in any of them) upon which the continuance of life depends.

In all cases of asphyxia, electro-magnetism must be useful; and I am strongly impressed with the belief that it might be applied in very many instances to still-born children with the happiest effects; for this purpose an instrument might be used of a very portable form,—that used by me in the case related consists of a large *horse-shoe magnet*, mounted upon a stand, in a vertical position, with an *armature*, fixed upon an axis between the poles, so as to revolve in front by means of a wheel. The *armature* consists of two cylindrical bars of soft iron, connected by a cross-bar, and in the *centre* of the bar is an insulated ferule; as near the end of the bar as possible is fastened the “*breakpiece*.” Around each of the cylindrical bars is wound *two thousand two hundred and fifty feet of wire*, covered with cotton thread, to prevent the current of electricity from passing from one wire to the other; the end of *one* of the coils is connected with the “*breakpiece*,” and the other with the *ferule*. From one of the pillars, which are in *front* of the armature, the *springs* are made to act on the ferule and breakpiece. From the other pillar the spring connects with the *centre*; the *handles* are fastened by the *set screws* in the base of the pillars. There are four set screws in the back of the upright block of wood to set out the magnet, so as to make the armature revolve as close as possible to the magnet. The shock is communicated on ordinary occasions by grasping large brass handles which connect with the instrument by short coils of wire, which are painted red. To apply it to different parts of the body long wires, covered with cotton-thread, and terminating in brass balls, are used. Two glass cylinders enclose the wire near the balls, for the operator to hold by while administering the shock.

The above article, which we copy from the London Lancet, is also published in the American Journal of the Medical Sciences, for April, just received. Dr. J. Warrington, through whom it was transmitted to the latter Journal, received at the same time two parcels, one containing the half-ounce of

powder corresponding to that taken by the patient; the other a substance purporting to be cubebs, and bought at the same shop. These were given to Mr. Procter, Jr., for examination; he publishes an analysis of them in the American Journal, from which we copy so much as will show the nature of the deleterious substance.

The substance submitted for investigation consisted of two specimens; one labeled "sample of the powder corresponding to that which the patient took;" the other, "sample of the powder purchased by Mr. Peel whilst the patient was under the influence of the poison, who at my suggestion, went to the same shop and asked for an ounce of pulv. cubebs." They were severally enveloped in double papers and sealed; the first weighing about 100 grains, the second 200 grains; and their sensible properties accorded in all particulars.

The powder was dry, finer than cubebs ordinarily occur, and without the moist appearance usual to it. Its color was a uniform brown, its odour less aromatic and agreeable than that of good cubebs, and its taste pungent, though accompanied by a bitterness not found in the genuine drug.

In the paper accompanying the specimens, Dr. Page does not express an opinion as to the nature of the poisonous agent associated with the cubebs. A consideration of his remarks on the symptoms produced by the powder, suggested the idea that opium mixed with cubebs might produce all the effects there detailed. The sensible properties of the substance sustained this impression, and the addition of tannic acid and a persalt of iron to its decoction giving indications favorable to the presence of morphia and meconic acid, was considered sufficiently encouraging to cause a pursuit of the investigation with a view to the presence of opium.

* * * * *

The following is a summary of the substances isolated.

	In 100 parts.
Cubebin or piperin,	2.25
Morphia,	2.50
Meconic acid,	1.25
Narcotine,	} Proportions not ascertained.
Narceia,	
Volatile oil and resin,	
Extractive and gum,	
Chloride of sodium,	
Lignin,	}

As the object of this analysis is to ascertain the nature and properties of the deleterious agent associated with the cubebs, only those parts of the investigation have been given in detail, which, by proving the presence of morphia and meconic acid in the powder, render the existence of opium in it evident. That other principles, as codeia, meconin, etc., were also contained in it, there cannot be a doubt, but search for them would be as hopeless as it is useless. In conclusion, it may be observed that the quantities of morphia and meconic acid indicate the presence of about 30 per cent. of opium in the powder, equal to 75 grains in the dose taken by the patient, and doubtless sufficient to have occasioned death.

Researches on Digestion.—By BOUCHARDAT and SANDRAS. By feeding dogs with pure fibre, killing them at different intervals after taking the food, and examining carefully the contents of the stomach, intestines, and the chyle itself, and comparing them with the appearances presented in dogs killed while fasting, Bouchardat and Sandras have arrived at results which, while opposed to the usual belief of the physiology of digestion, seem to bear out the conclusions drawn by the illustrious experimentalists. They found that the fibrin was converted into a fluid in the stomach, was in fact dissolved. They found that the fluid did not pass into the intestines, or but a very small portion only, that all the truly dissolved matters were removed like other fluids from the stomach itself. That the matters which were found in the intestines of the animal killed when fasting were identically the same as those of the animal fed with a full meal of pure fibrin, only the latter contained a slightly greater proportion of fibrin in a dissolved or fluid state. The chyle, too, of the fasting animal presented the exact same qualities as that of the animal which had a full meal of fibrin, the proportion of dissolved fibrin in it was only very slightly greater.

It was found that the solution of the fibrin in the stomach took place by means of hydrochloric acid, and that the same process could be imitated out of the body by mixing a quantity of hydrochloric acid, so small as scarcely to affect litmus paper, in distilled water, and immersing in it a morsel of fibrin. After twelve hours, at the ordinary temperature, the fibrin was found converted into a gelatinous mass, which, if dissolved in distilled water and filtered, could not be recognized to differ in any chemical character from the fibrin found

dissolved in the stomach of the dog. These experimentalists, therefore, regard the hydrochloric acid as the essential agent in the solution of the fibrin; and as the experiments of Hallé, Magendie, and other physiologists prove, that alcohol and other fluids, colored and uncolored, are removed directly from the stomach by means of the venous system, and cannot be recognized in the chyle while their presence can be detected in the blood, Bouchardat and Sandras have no hesitation in stating, as the result of their observation, that the same takes place with the fibrin after it has once become dissolved.

They performed analogous experiments on dogs with gluten, and found the very same results were arrived at. It formed a solution in the stomach precisely similar to that of fibrin; was removed from the stomach in the same manner, without passing into the intestines in any appreciable quantity; and dissolved out of the body by means of water slightly acidulated with hydrochloric acid. Albumen and pure caseum underwent solution in diluted hydrochloric acid in the same manner, and furnished the very same reactions with chemical agents.

A number of other experiments were made on the digestion of starch, sugar, &c., from which it appeared that these substances all became converted in the stomach into lactic acid, and were removed from it directly in the same manner as the dissolved fibrin, gluten, &c., had been. The chyle of animals fed with these non-azotized matters yielded no traces of starch and scarcely any of acid. In all animals the chyle was alkaline, or quite neutral. When dogs are fed on substances which they loathed, and would have vomited were the œsophagus not tied, the chyle was neutral, but when fed on bread or potatoes was always alkaline.

Experiments were also made on feeding dogs with fat. It was found that this substance was not altered in properties in the stomach, as pure fat was obtained from the pultaceous mass. The other liquids present in the stomach were acid, and contained hydrochloric acid. In the duodenum a yellowish-colored emulsive mixture was found, with a neutral reaction, which yielded fat when washed with ether. The other small intestines contained also a similar matter which furnished fat to ether. The thoracic duct furnished a white milky-looking chyle, much whiter than was ever seen in the former experiments, and when washed in ether furnished a notable quantity of fat.

These experiments seemed to prove that fat is digested in a very different way from the other nutritive matters; that it

undergoes no change in the stomach, but that its chief changes occur in the duodenum; that, in fact, those changes occurred to it there which facilitated its absorption. These changes are, however, very simple. The pancreatic fluid and the bile mixing with the fatty matters, form a simple emulsion, without changing the chemical nature of the fatty matters. If these contain margaric and oleic acids in their natural state, they are saturated by the alkali contained in the pancreatic juice and in the bile. In this state they are absorbed by the orifices of the chyliiferous vessels, and from thence carried into the thoracic duct, and mixed with the chyle. The analysis of the chyle proves this fact, and the examination of the contents of the bowels, at all parts of their course, prove that they contain fatty matters, which, if given in too large quantity, are even excreted with the feculent matters.

Bouchardat and Sandras draw the following important conclusions from their experiments:—

1. In digestion, the functions of the stomach consist in dissolving with the aid of hydrochloric acid, all albuminous matters, as fibrin, albumen, caseum, and gluten.

2. This acid, if diluted with 5000 parts of water, dissolves the same matters out of the body, provided they are not cooked; but if boiled the solution has no action on them. As they are found to be dissolved, however, in the stomach, it is probable that some other agent is at work than simple solution by means of hydrochloric acid: but the presence of that acid seems to be always indispensable.

3. As far as the albuminous matters are concerned, digestion and absorption take place exclusively in the stomach; the intestines present scarcely any traces of those dissolved matters which exist in such abundance in the stomach.

4. Solution of fecula also occurs in the stomach. This principle does not appear to pass into the state of sugar, and the experiments do not even warrant the statement that it passes into that of soluble starch; we regard as proved, its transformation into lactic acid.

5. The absorption of this kind of aliment seems to take place less exclusively from the stomach than that of the albuminous matters, a circumstance which would accord with the particular disposition and length of the intestines in animals not carnivorous.

6. Fatty matters are not attacked in the stomach. They pass into the duodenum in a state of emulsion, in consequence of the alkalies furnished by the liver and pancreas.

This emulsion is found abundantly throughout the whole course of the intestines.

7. The chyle has appeared to be somewhat less abundant, but presenting similar characters in the animals which were killed after long fasting, and in those killed after being fed on copious meals of albuminous matters and of fecula. It has only presented a marked difference in those fed with fat, when this principle was met with in it in considerable proportion.

Differing as these views do from those at present in vogue relative to digestion, Bouchardat and Sandras add a few remarks on the peculiarity of their views and the probable use of the chyloferous system of vessels. It is to be remembered that they found that the chyle procured during the digestion of fibrin did not differ in a single character from that procured from an animal fed on fecula alone, or in a state of starvation. That, in fact, these matters had not been converted into chyle. One important fact they ascertained to be was, that these chyloferous vessels absorbed the fatty matter, but this cannot be their sole use. During digestion a large quantity of hydrochloric and lactic acids are secreted and thrown into the stomach. These acids must come from the decomposition of salts existing in the system—chloride of sodium and lactate of soda. The abdominal glands prepare for the chyloferous vessels and thoracic canal, a chyle, the alkalinity of which is greater in proportion to the acidity developed in the stomach; and thus chyle, which is not solely produced by the absorption of aliments, but by a process of true secretion, mixes with the blood, to neutralize the acid which was indispensable for the solution of the food in the stomach. This simple process allows the blood to be continually repaired, without appreciably changing its nature.—*Annales des Sciences Naturelles*, October, 1842. *Bulletin Med. Sci.*

The Treatment of Pneumonia in Guy's Hospital.—*The pure Antimonial cure.*—No one mode of treatment should be adopted in pneumonia. To say that venesection, twice or thrice repeated, or antimony, or calomel and opium, should always be the remedy, would be dangerous in practice. If the disease existed always in persons of the same habits, country, and locality; was always presented in the same stage,

uncomplicated (and so on), then one treatment might be adopted with advantage; and tables, showing the cures and deaths, from one or the other mode, might be trusted as guides. But each case should be more or less studied by itself. I shall presently have to recommend moderate venesection, followed by calomel, opium, and antimony; but a young man was admitted into Guy's hospital a few weeks ago suffering from pneumonia, passing to the second stage; no indication of tubercles could be discovered; he had no typhoid symptoms; but he was so feeble that bleeding would have killed him, or antimony would, I believe, have extinguished life. He was treated for the first twenty-four hours with ammonia; after which he was ordered in a pill,—two grains of blue-pill, two of extract of hyoscyamous, and one of ipecacuanha,—and a draught composed of ten minims of liquor potassæ and an ounce and a half of decoction of bark, every six hours; a blister to the side, and mild nutritious diet. It is true that a few days after, when he had improved in power, he was put upon calomel and opium, and antimony; but these were withdrawn in two days. He then had merely a little saline medicine, followed by quinine; blisters to the affected side were several times repeated during the period, and he left the hospital in a few weeks, cured of his inflammatory complaint, though still weak. He will probably ultimately die of phthisis.

In the average of cases in this hospital a considerably larger proportion of those who were bled recovered, than of those who were not. But that venesection is therefore advantageous in pneumonia, abstractedly considered, could not be fairly supported, as venesection was, I believe, practised in *all cases*, excepting in those who were already too much debilitated, or too slightly affected.

The plan for many years generally adopted in Guy's Hospital, in acute pneumonia, has been to bleed the patient to approaching syncope, and to administer a pill, containing half a grain of opium, and a quarter of a grain of tartarised antimony with one or two grains of calomel, every three, four, or six hours, according to the severity of the symptoms, usually combined with a saline mixture, containing twenty or thirty minims of antimonial wine. If, in a few hours, or next day, the general symptoms have been unsubdued, or have returned, venesection has been repeated. It has sometimes been necessary to bleed again and again. Triple venesections have been uncommon, and a fourth very rare. If the general symptoms, on the contrary, have been reduced, though the

local affection has continued severe, or if the patient's power has been materially diminished by venesection, cupping has been ordered, to from six to twelve ounces. On a decrease of the disease, the medicines have been less frequently repeated, or stopped, even though the mercury has not affected the mouth. If the system has evidently become affected thereby, but the complaint is still active, it has usually been discontinued, or repeated only in small unfrequent doses. Blisters also have been applied with good effect in the latter stages. The utility of the latter remedies has been doubted; but I state my thorough conviction of benefit being derived therefrom, in very many instances. The foregoing treatment has been, on the whole, so efficient that no important change has been considered justifiable.

I have frequently been desirous of trying the pure antimonial, or contra-stimulant, treatment; but in so important a disease I have not felt justified in discarding means which have so often effected a cure. I must, however, confess that the results of the treatment of pneumonia in Guy's Hospital—if all cases, however advanced, and however complicated, be taken into account—are not to be compared with what are stated to have been the “triumphant” effects of antimony. Thus Laennec says, that of 62 cases treated by antimony, only 6 died, two being moribund on admission, two old men of seventy, with cerebral congestion and pleurisy, and the sixth under disease of the heart. Others are reported to have lost only 1 in 30 and 1 in 40 cases. However, my observation is entirely opposed to Laennec, when he states that he has never known the disease renewed when antimony had effected amelioration. In the Infirmary of Edinburgh, while I was a pupil there, a patient after two venesections, leeches, and continued antimony, was considered almost convalescent. The antimonial solution was however continued. But when the disease had for four days appeared to be rapidly decreasing, the attack was renewed; and it was necessary again to bleed him to ten ounces, after which he rapidly recovered. The same has certainly happened in several cases that have fallen under my notice. In some instances, also, when antimony has been at first employed with benefit, but relapses have taken place, it has appeared necessary for the cure to administer calomel and opium in combination with it. Nevertheless, I believe antimony to be especially useful in persons who cannot bear the abstraction of blood, and those in which mercury is contra-indicated. In such cases, as in the pneumonia and bronchitis of children after measles, I have occa-

sionally administered it, and with manifest advantage. The patients have, it is true, died from another complaint; but that complaint has been, I have thought, produced by the remedy employed for the pneumonia.

The great authority last quoted considers antimony to be equally efficacious "in any stage of the disease, even after a great portion of the lung has undergone purulent infiltration;" and supposes that it may act by "increasing the activity of *interstitial* absorption." But the well-known action of mercury in promoting the absorption of effused matter, clearly points it out as the medicine especially indicated when there is inflammatory deposit.

From the whole circumstances, I believe that antimony is a very active remedy in pneumonia, more particularly indicated in slight and recent cases, those complicated with bronchitis, and those in which venesection cannot be borne or repeated, and mercury cannot be safely employed; that the cases are often more rapidly relieved by it than by any other means, but that they are also more than ordinarily liable to relapses; and that when consolidation has obviously occurred, it should not be trusted alone, but should always be given with mercury.—*Dr. Hughes, Guy's Hosp. Rept., October.—Lancet.*

Communication of Pulmonary Air Vesicles by a direct route with the Pulmonary Veins. By W. E. HORNER, M. D., Prof. of Anatomy in the University of Pennsylvania.—The following experiments go to determine this point.

EXP. I. In July last I lost a patient, James Roomy, ætat. 19, at the Philadelphia Hospital, who had been treated by me for calculus of the bladder, by lithotrity. On the examination of him after death finding the lungs in a state of perfect health, they were removed and taken to the University. I then fixed a pipe into the trachea and permitted a column of water to pass gently. The lungs filled up very completely, the air cells became distended with water, and somewhat to my surprise at the time, (for I had no such result in view, but merely to wash the lungs well for ulterior anatomical purposes,) the left side of the heart filled and the aorta began to discharge water from its cut branches very freely, in fact in a strong jet when compression was made so as to reduce the size of the stream in its exit.

No stream made its appearance from the right side of the

heart, the water not showing any current in that direction, not even in drops, nor filling the pulmonary artery.

These observations were repeated at several trials of a separate kind on the same pair of lungs on the same occasion, and were renewed the next day. The result was announced at the time to Dr. Samuel Jackson, my colleague as we were in consultation on a patient.

EXP. II. In December last, a young athletic man lost both his legs from a railroad accident, followed by amputation. Having got his lungs with the heart attached, I renewed my experiments on the free communication of the air vesicles of the lungs with the pulmonary veins, and found the same results from a column of water gently let into the trachea—the left side of the heart readily filled, and the branches of the aorta spouted out water. The pulmonary artery and the right side of the heart did not fill, but a little water after a while returned by them, not however in any approximation to the quantity discharged by the aorta.

EXP. III. *Feb. 16th.* A Malay about thirty years of age, athletic and well formed, belonging to an East Indiaman, committed suicide about a fortnight ago. He stabbed himself in the abdomen so as to sever the colon and duodenum, and also opened the external carotid artery; by these several wounds he was well drained of blood. He was injected so as to retard putrefaction; the weather also has been highly favorable from its coldness, to the same end. The lungs to-day were in a state of perfect soundness, and of elegant normal texture and colour, so that I exhibited to the anatomical class the best specimen of them in a state of exact physical soundness with freedom from congestion of blood, that I have met with in thirty years of anatomical pursuits. In the evening I injected the left lung according to my plan, with tallow, having in view the connection of the air vesicles with one another.

On the 17th, I applied as in the two preceding experiments a column of water upon the lung of the right side. In a very little time I found the water returning by the pulmonary veins *pleno rivo*, and a very scanty show of it in the right pulmonary artery, not enough to discharge except by drops in a very slow manner. The experiment was renewed on several trials, and the results the same.

It may here be remarked that the return of the fluid by the pulmonary veins was much more rapid in the beginning than towards the end of these experiments, for when the lungs be-

come infiltrated with the water the connection of the air vesicles and the pulmonary veins is not so free.

EXP. IV. *Sept.* 1842. On the lungs of a hog taken from a slaughter-house, the experiment done in the same way showed no communication either with pulmonary veins or arteries on the part of the air vesicles.

EXP. V. On the lungs of a sheep, resulted in failing to show also any communication with the pulmonary arteries and veins on the part of the air vesicles.

EXP. VI. On the lungs of a calf, also failed to prove the communication between the air vesicles and the pulmonary blood-vessels.

Among the venerable rites of that ancient people, the Hebrews, is a scrupulous regard to the perfect healthiness of the flesh that they eat, and also to the animal when slaughtered having the blood almost thoroughly evacuated. At the suggestion of my friend, the editor of this Journal, I obtained the lungs of animals prepared for market by one of their butchers, and the following results occurred in the lungs of the calf and sheep.

Feb. 25th. EXP. VII. On a calf. The lungs, upon the introduction of water into their air vesicles, began to return the water in a little time by the pulmonary veins and the pulmonary arteries. In keeping up the pressure of the column, it returned by a large free stream from both sets of vessels.

EXP. VIII. On a sheep. The lungs under the same regulated pressure of a column of water, returned it by the pulmonary arteries and veins also in a clear large stream.

In neither animal, however, did it return with equal freedom as in the human subject: though, in the lungs of the calf, the stream was sufficiently copious to wash back several large coagula of blood from the pulmonary artery.

The preceding experiments would go to prove the existence of a direct communication between the air vesicles and the pulmonary blood-vessels, especially the veins. A suggestion to the contrary, which may have some force, is, that the connection, as above established, is not by direct inosculation, but by infiltration: to which it may be replied, that in such case the injected fluid, by passing into the common connecting cellular substance, would constitute an intervesicular and interlobular dropsy, which would show itself by the water raising up the pleura in large vesications or bags—and by its forming large interlobular collections—also by the incapacity of the lungs to contract to the normal size in a short time,

after the pressure of the water was withdrawn and the trachea left open. The lungs would at least remain for a time of a size nearly stationary on the suspension of the experiment, as in the carnification arising from the large effusions of blood into its substance in violent pneumonia. Now if prudence be observed in the experiment, none of these events occur, but the lungs collapse almost as readily as if they had been distended simply with air.

EXP. IX. On the fresh lungs of a large bullock. The residuary air of the pulmonary vesicles was, by the force of a column of water, driven from the lungs into the pulmonary blood-vessels, and the pulmonary artery was distended and inflated with the condensed air, so as to give it a tension and elasticity like that of a strongly inflated large intestine. With this state of things there was no emphysema of the lungs, which would follow inevitably without a direct communication between their air vesicles and the pulmonary vessels.

In the same lungs the current of water sent into them through the trachea, returned so freely by the pulmonary artery as to make a jet six or eight inches long, and of the size of the little finger; it also came out in a free jetting stream from the branches at the arch of the aorta. These jets could be increased, diminished or stopped without delay by the turning of a stop-cock.

EXP. X. On the lungs of a pig. I first of all inflated them by the pressure of a column of water acting on a reservoir of air. The air was found to pass readily to the heart by both pulmonary veins and arteries, but with especial freedom by the latter and distended them strongly. Having satisfied myself of this result, I then let in a column of water, which, as in the other experiments, returned freely by the pulmonary blood-vessels, being indicated by a bold stream from the pulmonary artery and aorta.

The abundance of the pulmonary capillaries, and their thinness and superficial position may be considered as additional arguments in favor of the conclusion drawn above, of direct inosculation with the air vesicles, but of course by pores which must be exceedingly fine. The lateral pressure of a column of water upon them would, without such inosculation, have the effect of water in the bladder upon the ends of the ureters, and would prevent itself from getting into them.

The foregoing experiments may serve to elucidate some of the phenomena of respiration and of pulmonary hemorrhage.

The fact appears to be overlooked by pathologists generally, that the bright color of the blood in hæmoptysis, and the more superficial position and greater numbers of the pulmonary capillary veins, indicate that they are the true fountains of its blood instead of the arteries:—opinions which have for many years past been taught by me, on the ground of my minute injections of the lungs.

I may also state that with these experiments of the unquestionable transmission of fluids and of air into the pulmonary vessels from the air vesicles, we can now account for what every experienced anatomist has often observed, and will in every case see, to some extent: that there is always air in the pulmonary artery, the left side of the heart, and the aorta, after death, however recent the death may have been, and also account for the mistake of the ancients that the arteries conveyed air naturally, inasmuch as they were found filled with it after death, an error which has been indefectibly commemorated in the name of these tubes.

As leisure offers I propose to go on with the experiments on the above question of continuity between the blood-vessels and the vesicles of the lungs; but hope that in the mean time it may attract the inquiries of others more competent to settle the precise mode of this continuity.—*Amer. Journ. of the Med. Sci.*

Luxation of the Patella on its axis. By JOSEPH P. GAZZAM, M. D., of Pittsburg, Pa.—SEPT. 10th, 1842. This evening at 7 o'clock, James, aged 21 years, son of Judge Porter, of Pittsburg, was thrown while wrestling, and immediately found himself unable to rise.

On seeing him about an hour after the accident, I found the patella of the right leg dislocated on its axis, i. e. it was lying on its edge—presenting the posterior face outward, and the anterior face inward—the inner edge resting in the groove between the condyles of the femur.

Flexing the thigh on the pelvis and straightening the leg, I endeavored to replace the bone by pressing its edges in opposite directions, but failing (after repeated trials) I requested that the patient should be brought to town, (the accident happened three miles out of the city), and additional advice procured.

At about 12 o'clock the patient was brought to his father's house, where I met Dr. Addison. After repeated unsuccessful

ful attempts at reduction, it was thought well to lessen the tension of the joint by dividing the ligament of the patella. This I did by introducing beneath the skin a narrow-bladed knife, and cutting the ligament close to the tubercle of the tibia. Again we attempted reduction but failed. The patella could be moved on its edge more freely than before the cutting, but resisted all our efforts to replace it.

Dr. Speer was now joined to the consultation, and in accordance with his suggestion the patient was placed erect, a vein opened, and the blood allowed to flow until the approach of syncope, when the efforts at reduction were renewed—but although the patella could be moved on its edge, it could not be lifted out of the groove in which it rested. It was now agreed to let the patient rest for a few hours.

11th. At 8 A. M. the consultation was resumed, and it was now proposed to adopt with some modification the plan of Dr. John Watson, of New York, as detailed in the *N. Y. Journ. of Med. Surg.* No. 2, and republished in the *Am. Journ. of Med. Sciences*, vol. 25, p. 252.

The thigh was strongly flexed on the pelvis and the heel elevated. Then the leg was flexed steadily and forcibly on the thigh and suddenly straightened. At the moment of straightening the leg I pressed very strongly against the lower edge of the patella from without, with the head of a door key well wrapped, while Dr. Addison pressed with both thumbs against the upper edge of the bone towards the external condyle. On the fourth trial this manœuvre succeeded, the bone springing into its place with a snap. A cushioned splint was placed behind the knee and secured by a bandage—an evaporating lotion was used, and the patient kept at rest. Recovery was uninterrupted, and the young man has now perfect command of the limb.

To the inexperienced it may seem that I have attached undue importance to this case by reporting it for the medical public; but I have no fear that those who have encountered such a case will think it altogether valueless.—*Amer. Journ. Med. Sci.*

On Abnormal Nutrition (commonly called Inflammation), and on the mode in which its different Products are developed, as Softening, Suppuration, Granulation, Reorganization of Tissue, Morbid Growths, &c. &c.—Dr. J. H. BENNETT, in a communication read to the *Medico Chirurgical*

Society of Edinburgh, commenced by alluding to the well-known fact, that the blood circulating to every part of the living organism, carried with it the principles of nutrition. These appear to exude through the minuter vessels dissolved in the liquor sanguinis or blood plasma, which constituted a blastema or formative fluid for the formation of nucleated cells. The cells thus formed, underwent different kinds of development, some being formed into bone, others into muscle, nerve, tendon, filamentous tissue, and so on. The insensible formation and development of these cells constituted healthy nutrition.

This process might be deranged, or rendered abnormal, in various ways: 1st, from an increase or diminution in the whole mass of the blood; 2dly, from a greater or less change in the relative amount of its different chemical constituents; and, 3dly, from mechanical and other causes acting more especially upon any part of the frame. It was to the phenomena accompanying the latter condition that Dr. Bennett was desirous of directing the Society's attention. These were rapidly described, as they have been observed by numerous authors, and confirmed by Dr. Bennett, viz: 1st, Contraction of the capillaries, and diminished velocity through them of the flow of blood; 2dly, Dilatation of the capillaries, and diminished velocity of the blood's current; 3dly, Oscillation of the column of blood, and encroachment on the lymph spaces; 4thly, Complete stagnation of the blood, the red corpuscles crowded together in an amorphous mass, and brought into immediate contact with the vascular walls.

During the latter stage of this process, or at its termination, three circumstances might take place: 1st, Effusion of serum; 2dly, Exudation of blood plasma; and, 3dly, Extravasation of blood by rupture of the vessel. The object of the communication was to describe the changes which followed exudation of the liquor sanguinis.

The blood plasma on being exuded from the blood-vessels, might remain fluid for some time, and would then be necessarily reabsorbed. Vogel and Vogt refer to cases where on cutting across small cavities in the brain, the fluid they contained immediately coagulated. More frequently, however, instead of remaining fluid, the blood plasma coagulates. When this has once occurred, it undergoes changes, which vary in different cases, before it can be reabsorbed or removed from the system. The material exuded constitutes a blastema for the formation of nucleated cells, which gene-

rally, though not always, vary in character according to the nature of the tissue in which the exudation takes place.

In parenchymatous organs, the liquor sanguinis usually coagulates in the form of granules, which may be seen coating the vessels, and filling up all the space between the ultimate tissue of the organ. By this process, the organ affected is rendered perfectly dense or hepatized. After a time, or during the exudation, nucleated cells, (*exudation corpuscles*), are formed, which vary in size from 1-100th to 1-25th of a millimetre in diameter. They become filled with granules from 1-500th to 1-700th of a millimetre in diameter. The cell wall then bursts, and the granules escape. By means of this process, and the development of the exuded mass more or less into cells, it is broken up, and rendered fluid. Thus the morbid state in organs, named *softening*, is produced.

The exudation corpuscle may be distinguished by its undergoing no change on the addition of acetic acid. Ether and caustic potash entirely dissolve them; liquor ammonia renders them soft and easily broken down.

On the surface of serous membranes, the exudation generally passes into cells and very minute fibres. These cells (*plastic corpuscles*) are transparent from 1-100th to 1-75th of a millimetre in diameter, formed of a delicate wall, containing granules 1-1000th to 1-600th of a millimetre in diameter, varying in number from 3 to 12. They are not perfectly round, but somewhat irregular in form. The mode of formation of the minute fibres is unknown. Gulliver has pointed out that they are not the result of cellular development.

The plastic corpuscle may be distinguished by its wall contracting, and the edge becoming thicker on the addition of acetic acid. The shape is also rendered more irregular; it is dissolved in ether and caustic potash, and not affected by water.

In the skin, loose cellular tissue, &c., the exudation commonly passes into cells, usually from 1-100th to 1-120th of a millimetre in diameter, perfectly round, with a defined edge, containing several granules, and sometimes a round nucleus. These cells (*pus corpuscles*) swim in a fluid, roll freely on each other, are of a yellow-greenish color, and constitute the organized part of the fluid universally known as *pus*. They are not formed from the exudation corpuscle, or epithelial cells, as has been supposed, but arise primarily from the exuded blood plasma.

The pus corpuscle may be distinguished by its swelling out

and becoming more transparent on the addition of water; by the cell wall being dissolved, or nearly so, in acetic acid, whilst the nucleus is rendered more distinct in the form of two or three granules, generally from 1-300th to 1-400th of a millimetre in diameter. They are dissolved in ether and concentrated alkalies.

The exudation, plastic, and pus corpuscles, although most commonly formed in the situations referred to, are not exclusively so. The pus corpuscle may sometimes be formed in parenchymatous tissues, and exudation corpuscles in cellular tissues. Sometimes they may be more or less mixed together. Thus the plastic and exudation corpuscles are commonly formed in the lung; and exudation corpuscles may frequently be found swimming among those of pus.

The exudation may also pass into *organization of tissue*, apparently by the same process as takes place in a state of health. Should it exist in small quantities, and further exudation be checked by bringing the divided parts into apposition, reorganization of tissue occurs *rapidly*, and *union by the first intention* is established. On the other hand, when this process takes place *slowly*, a state called *hypertrophy* is produced.

When loss of substance is occasioned, the exudation passes partly into organization of tissue, and partly into pus corpuscles, by means of which a *granulating surface* is produced. A fungous granulation examined under the microscope, exhibits all the stages of development presented by cells, passing into fibres, as figured by Schwann. Externally these are covered with pus corpuscles. As the former increase the latter diminish, until at length a normal tissue is reproduced, or a dense fibrous mass denominated *cicatrix*.

Lastly, the exudation may be transformed into nucleated cells of different shapes, round, oblong; caudate, stellate, more or less square, &c. &c., either mixed or unmixed with fibres, constituting the different kinds of morbid growths, as indicated by Müller.

Thus in the same manner as in a state of health, cells originating in the effused liquor sanguinis, may undergo different kinds of development, as into fibre, muscle, nerve, &c., constituting *normal* nutrition; so in a morbid state cells originate in the exuded liquor sanguinis, which are transformed into exudation, plastic, pus cells, tumours, &c., constituting *abnormal* nutrition.

Dr. Bennett agreed with Andral and Magendie in considering that the term inflammation was inapplicable to the expla-

nation of the phenomena he had described. He pointed out how the cardinal symptoms of inflammation, pain, heat, redness, and swelling, were partly dependent on the exudation, and partly on the congestion which preceded it. He had even seen some cases of encephalitis, where the central parts of the brain were softened, and contained numerous exudation corpuscles, although during life no pain or heat, and after death, no redness or swelling had been observed.

Inflammation, therefore, was only a part of one great morbid action occurring in the frame, which might be denominated abnormal nutrition, and more especially that species of it dependent on increased exudation of liquor sanguinis.

Numerous authors had referred inflammation to increased nutrition or secretion. Dr. Alison more especially seemed to consider this essential to the inflammatory process, (*Lib. of Med., Art. Inflammation*). Before the doctrine of cytogenesis was established, however, nutrition of parts was invariably connected with vascularity, and pus was considered an unorganized fluid. At present we must regard pus, lymph, softening from exudation, &c., as being highly organized, and resulting from an active process of nutrition. Hitherto increased nutrition, as connected with inflammation, has been mere hypothesis; Dr. B. stated, that it was the object of his communication to *demonstrate* its correctness.—*Lond. and Eden. Month. Journ. Med. Sci.*, Dec. 1842.—*American Journ. Med. Sci.*

Tubercular Deposits in the Bronchial Glands.—Drs. RILLIET and BARTHEZ, from their extensive researches into this interesting subject, find, that, by compressing the vena cava superior, tubercular enlargement of the bronchial glands may be followed by—1. Œdema of the face; 2. Dilatation of the veins of the neck; 3. Livor, in a greater or less degree, of the countenance; 4. Hemorrhage into the arachnoidal cavity.

By compressing the pulmonary vessels they occasion—1. Hæmoptysis; 2. Œdema of the lungs.

When they press upon the pneumogastric nerves, they cause—1. Alterations in the pitch and quality of the voice, and cough; 2. Violent fits of coughing, resembling those of hooping-cough; 3. Asthmatical attacks.

The action of enlarged and tubercular bronchial glands on the lungs and bronchi is very remarkable. By compressing the air-passages, they produce—1. Sonorous *râles* of great

intensity, very persistent, and of which the quality is sometimes very peculiar; 2. They impede the access of the air, whence follows obscurity in the respiratory murmur, though this sometimes depends on the œdema of the lung, which is consequent on the pressure upon its returning blood-vessels. Sometimes they serve as conductors of sonorous vibrations, from which the following effects ensue:—1. Alterations in the character of the respiratory murmur, the lungs themselves being perfectly healthy, such as prolonged expiration, bronchial respiration, and all the sounds which, in the normal state, must take place in the bronchi, but which do not reach the ear; 2. Great extension of the stethoscopic indications of any particular lesion, as from the one side of the chest to the other.

The observations, of which the above summary is given, were made upon children.—*Lond. and Edin. Med. Journ. Med. Sci.*, Feb. 1843, from *Archiv. Gén. de Méd.*, December, 1842.

Pulmonary Consumption in Man and Animals.—RAYER read a long memoir on this subject to the French Academy of Sciences, on the 25th July last. The following are his conclusions:—

1st. Of all chronic diseases, pulmonary consumption is the most common in man and animals.

2d. In man and other mammalia, the tuberculous matter can always be easily distinguished from recent pus, which is loaded with seed globules. In birds, the characters of tuberculous matter are less marked; foreign bodies introduced into the lungs and flesh, do not produce an opaque white humor, full of seed globules, but a dry yellowish matter, without globules, whose physical characters approach those of tubercles in the mammalia. In reptiles, fishes, and insects, the characters of tubercle are still less distinct.

3d. Pus, in the mammalia, and chiefly in the horse, if it remains long in any organ, undergoes successive transformations, so that at last it resembles tuberculous matter.

4th. Pulmonary tubercles in man and in the quadrumana have generally a gray color; in the *pommelière* of the cow the tuberculous matter is yellowish.

5th. In man and animals the softening of the tuberculous matter in the centre cannot be attributed to inflammation, as no pus globules are ever seen; the softening, however, on the

circumference is much assisted by the inflammation of the contiguous tissues, and it is almost always mixed with pus globules.

6th. The yellow matter which is found in the cysts of hydatids in the ruminantia after the destruction or spontaneous rupture of the cysts, has some analogy with tubercular matter, (*pommelière*;) but the cysts of this yellow matter almost always contain the debris of the hydatid pouch, and sometimes a certain quantity of pus.

7th. The earthy or calcareous concretions (principally composed of carbonate and phosphate of lime) which are met with in the lungs of man, and other animals, ought not to be considered, as they are even to this day, as being almost always a modification of tubercle. They are frequently in man, and very often in the horse, the residue of a small depot of pus.

8th. Granulations depending on worms and on glanders form in the lungs of several animals, which ought to be distinguished from tuberculous granulations.

9th. Among the quadrumana, and some birds brought from warm climates, consumption shows itself in its greatest degree, and almost to the exclusion of other chronic diseases. It is equally often produced in other animals coming from the north, as the rein-deer, by a change of climate and food.

10th. Consumption, which is rare among the domestic herbivorous (solipedes) animals, is still rarer among the carnivorous. However, notwithstanding the preservative influence of a strong constitution, and an animal diet, several of the carnivora, as the domestic cat, and especially the lion, tiger, and jaguar brought to our country, have been seized with phthisis. This rarity of consumption is also seen in birds which are rapacious.

11th. By a kind of contradiction, the domestic dog among the carnivora, and the hare among the herbivora, are less subject to tubercles than to cancer, a disease which Camper thought never attacked the lower animals.

12th. Among the ruminantia, and especially in the class boves, consumption is often associated with vesicular worms, and particularly with the echinococcus; but, contrary to the opinion several times given, there is no transformation or succession between these hydatids and tubercles.

13th. Fatty liver is the common accompaniment of consumption in man, and general obesity in birds.

14th. The alterations of bone which are observed in simiæ affected with this disease, and more particularly in those from

New Holland, appear analogous to the deformities, swelling, and spongy softening of the bones seen in phthisical and scrofulous children. Similar alterations of bone take place among the carnivora brought to this country from a warmer climate.

15th. If the frequency of pneumonia, and the rarity of consumption in the domestic dog, would appear to do away with any connection between these diseases, the same thing cannot be said to occur in the calf, cow, or female ass, as in these the deposit of tuberculous matter almost always coincides with a chronic and increasing pneumonia.

16th. Consumption is hereditary, but it is almost never congenital, even in the rudimentary state.

17th. Among people affected with phthisis, the semen contained in the seminal vesicles contains few or no spermatic animalcules.

18th. Ulcers in the larynx, trachea, and bronchi, do not indicate the same thing in man and animals. In the former, they are almost always owing to consumption, and sometimes to syphilis; among the quadrumana to general tubercular diathesis, and among quadrupeds almost always to glanders.

19th. In pneumo-thorax, mouldy vegetations may form on the altered pleura of a phthisical patient, as sometimes takes place in the air-sacs of birds affected with consumption, or other diseases of the respiratory organs. In this case, as in all those which have been observed among the vertebrata, the development of these parasites is a secondary phenomenon.

Rayer classes the causes of consumption under four heads: A domestic state and captivity for the inferior animals, and misery and fatigue for man; and he concludes that science, which is altogether powerless in curing the disease, ought not to be so in preventing it.—*Lond. and Edin. Monthly Journ. Med. Sci.*, Dec. 1842.

In opposition to the seventh conclusion of R., PRUS asserts that for ten years he had been endeavoring to ascertain, at the Bicêtre and the Salpêtrière, the curability of tubercles, that he has been led more and more to believe that the earthy concretions, which are almost always at the summit of the lung, are only modified tubercles; that they are generally accompanied by traces of cicatrization; that sometimes old cavities, lined with a new mucous membrane, co-exist along with them; and, lastly, that it is easy to find, even in the same lung, tubercles in different degrees of progress, which present all the phases of this secretion, from its origin to its earthy state, and frequently the same cyst contains both tu-

bercle and earthy matter. Such are the reasons which make him dissent from Rayer's theory, that the earthy concretions are the result of a depôt of purulent matter in the substance of the lung, and not a modification of tubercle.—*Ibid*, February, 1843.—*Amer. Journ. Med. Sci.*

Existence of Lymphatics in pseudo-membranes.—Mr. HAMILTON was shown by Professor Vanderkelk of Utrecht, some preparations showing the existence of lymphatics in new and abnormal parts, such as the effusions and adventitious membranes which inflammation often leaves between the separate layers of serous membranes, and where beyond dispute, they must be newly-formed lymphatics in parts themselves new. "The first preparation," says Mr. H., "placed in my hand was of this nature. The pleura, on its sacral aspect, had been inflamed, had thrown out coagulable lymph, which, by a considerable bridge, connected it with a part of the diaphragm. The surface of this connection was not less than an inch or two in extent, and the bridge varied from a quarter of an inch to an inch in length. The lymphatics of these parts having been injected with quicksilver, the vessels of this system belonging to the lungs and pleura were very conspicuous; not less so those of the diaphragm; and thirdly, not less apparent than either, were distinct beaded lymphatics running along the effused membranes connecting the two normal tissues. As in this portion of the pleura, so it was equally conspicuous in another preparation—a case of lymph effused between the pleura costalis and pulmonalis, the bridge crossing like a regular bridge, and in this evidently adventitious membranous bridge were the lymphatics coursing their way as conspicuously as in the other parts."—*Lond. Med. Gaz.*, Jan. 6, 1843, from *Amer. Journ. Med. Sci.*

Abscess of the Brain.—In the *Archives Générales de Médecine*, a case of abscess of the right lobe of the brain is published, involving some interesting and important facts. A girl, a servant at a public-house, in a struggle with some drunkards, received a blow from a bottle on the lateral and upper part of the forehead, which caused a large and very contused wound exposing the bone. She was admitted into the hospital on the 9th of December, 1841, under the care of Blan-

din, and on the 13th of January, after the separation of several sequestra, the wound had cicatrised. The cure, however, was only apparent; a local pain remained, which increased in severity, causing the patient to scream loudly and prevented her moving her head. Vomiting and insomnia followed, but the intellect remained clear, and also all the other faculties. The pulse continued regular, but the patient gradually getting worse, and her general health evidently suffering much, Blandin, *en désespoir de cause*, proceeded to trephine, thinking the irritation might be caused by a sequestrum or a purulent effusion. A piece of the cranium about an inch in diameter was accordingly removed, but no fracture was discovered; the parts beneath, however, presented an equivocal feeling of elasticity to the finger. Under these circumstances, Blandin determined to wait, in the hope that the abscess, if there was one, would open spontaneously, but after the lapse of some time, no such result ensuing, an exploratory puncture was made with care, but without any advantage. For a time, after these operations, the poor girl seemed to be relieved, but the pain soon became more severe, and emaciation and prostration, followed by a severe attack of erysipelas, ushered in death. The opening made in the cranium by the trephine had not closed, and the dura mater was intact. On passing in the finger after death, the same elastic feeling was perceived as during life, and on examination, it was found to correspond to a large circumscribed encysted abscess in the right lobe, separated from the dura mater by a thick layer of cerebral substance. It is clear that if Blandin had incised this layer, the abscess would have been discharged, and the patient had a chance for life.

ARAN, the reporter of the case, in his remarks upon it, draws attention to the great neglect with which the trephine is now treated, and although far from an advocate for its general use, he equally condemns its total abandonment; he also thinks that in serious cases, such as that under notice, the surgeon not deriving benefit from the treatment, should not hesitate to plunge a narrow bladed bistoury into the brain itself, and to some depth if required.—*Prov. Med. Journ.*, Dec. 17, 1842.—*Amer. Journal*.

Local Treatment of Chancres by Sulphate of Copper and Cyanuret of Mercury. By Dr. STROHL.—The more rapidly primary syphilis is cured, the less likely are secondary symp-

toms to appear. The first object is most easily attained by cauterizing. Sometimes, however, this method is inapplicable; for instance, when the sore is very extensive, or much inflamed. In such cases, the author employs the sulphate of copper. The sores are dressed five or six times a day with charpie, which has been soaked in a solution of about a grain and a half of sulphate of copper to an ounce of water. Simple chancres, when thus treated, usually heal within twelve days. Dr. Strohl assures us, that he cures complicated chancres in an equally short time with an ointment composed of two grains of cyanuret of mercury to an ounce of axunge. This ointment is spread upon a piece of linen corresponding to the size of the sore. This dressing is apt to be painful at first; and it must occasionally be taken off, after it has been on for an hour or two, and the remedy must be applied in a weaker form. The pain is said to be most violent in half an hour or an hour, and frequently ceases entirely in two or three hours. When the chancre is extensive and painful, after the ointment has been on from four to ten hours, according to the sensibility of the patient, it is dressed with mercurial ointment, or opium cerate.

If the edges of the chancre have flattened, if the centre is cleaner, the pain less, and the suppuration healthy (which may occur after the first application of the cyanuret of mercury, but, at any rate, not later than the fourth), the treatment with the sulphate of copper is finished.—*Lond. Med. Gaz.*, Nov. 1842, from *Oesterr. Med. Wochenschrift*.

Nitrate of Silver in bed sores.—Mr. HENRY JACKSON, in a paper read before the Sheffield Medical Society, extolled the efficacy of the nitrate of silver for the cure of bed sores. He mentioned one case in which “all the known remedies had been tried without avail,” and in which a solution of nitrate of silver ten grains to the ounce, applied by means of a camel-hair brush, over every part exhibiting the slightest appearance of inflammation, two or three times a day, until the skin became blackened, and afterwards occasionally, answered perfectly,—*Prov. Med. Journ.*, Dec. 31, 1842.—*Amer. Journ.*

The Indian Hemp.—FEB. 22.—Mr. LEY this evening communicated a paper on the *cannabis Indica*, from which it appears that, although the hemp is rejected from our official

preparations in England, it is, and has been for a long series of years, in constant use as a popular remedy throughout the East. It exhales a powerful narcotic odour, and the branches are gelatinous to the touch, with a resinous secretion, which is collected when the seed is found (as the plant is then in the greatest perfection), and is sold under the name of *chur-rus*, the shoots from which the resin has *not* been collected, are cut, dried, and sold as *gunjah*. Although hemp is no longer used medicinally in England, there is an old Act of Henry the Eighth yet in force, by which it is forbidden to be soaked in ponds or running streams where cattle drink. The older writers speak of it as a violent poison, and state that the water in which it has been soaked produces its effects almost as soon as drunk. The resin of the *cannabis Indica* is in general use as an intoxicating agent from the furthest confines of India to Algiers. If this resin be swallowed, almost invariably the inebriation is of the most cheerful kind, causing the person to sing and dance, to eat food with great relish, and to seek aphrodisiac enjoyment. The intoxication lasts about three hours, when sleep supervenes; it is not followed by nausea or sickness, nor by any symptoms, except slight giddiness, worth recording. These effects are much modified in this country, and much less marked, possibly from the length of the voyage rendering the article deteriorated in value. The subsequent effects are depression of spirits and relaxation of the muscles in a marked degree; the free perspiration on the skin, and the increase of appetite, have made some old rheumatic persons speak of it as the elasticity of youth.

Mr. Ley draws a comparison between the effects produced by opium and those caused by the *cannabis Indica*, the result of which induces him to give the preference to the latter, its influence being excited more kindly and more gratefully on the system. It has proved of service in cholera and rheumatism, but it is in spasmodic and convulsive diseases that it is most eminently useful. In tetanus it has been the means of cure in the majority of cases, both in men and horses, and it has much relieved the horrors of hydrophobia, although not averted the fatal termination. It is useful, also, in chorea, spasmodic asthma, and delirium tremens, and generally wherever opium is indicated. Mr. Ley considers from this that it will prove a direct antidote, the first of its class, to strychnia, one of the most violent poisons nature affords.

Medico-Botanical Society.—Lond. Lancet.

Cure of Glanders in Man.—A WAGONER, nineteen years of age, entered the Hopital de la Charite, in Paris, on the 18th of October, 1831. He complained of having felt ill for the week preceding, without being able to specify any particular seat of disease. Soon intense pains were felt in the ankle and knee-joints, and the muscles of the leg and thigh, though unattended with swelling or redness. His pulse became quick, thirst intense; headach and prostration. On the 25th of October pustules, filled with a purulent matter appeared on the instep and upper surface of the three smaller toes of the left foot. These pustules broke, and cicatrisation was completed in a few days; but a diffused swelling now made its appearance in the anterior part of the superior third of the thigh, followed by two similar tumours, one on each leg. Mouneret, under whose care the patient was placed, now suspected the nature of the disease, and ascertained that one of the horses kept in the stable where the patient had been sleeping actually had the glanders. For the eight months ensuing tumours of a similar kind to the foregoing were successively and incessantly appearing on all parts of the upper and lower extremities, though they continued one after another to disperse, and nothing in the general condition of the patient, except his emaciation, gave cause for alarm; yet one curious collateral circumstance is stated. Early in December, 1841, a horse being inoculated with the matter from one of the abscesses, died in the course of five days, without, however, presenting during life any of the ordinary symptoms, or after death any of the usual morbid appearances belonging to the disease.

The treatment of the patient was the same nearly throughout, consisting chiefly of decoction and extract of cinchona in large doses, with wine.

On the 5th of July, 1842, iodine with iodide of potassium was administered. This was followed by an attack of erysipelas in the left arm, and the iodine was suspended, to be resumed on the 17th. No new tumours had appeared during the previous two months; the cicatrisation of those still existing was soon afterwards completed, and the patient was discharged perfectly cured on the 31st of July.

Andral, and other able pathologists who saw this case, were unanimous in pronouncing it a true instance of glanders. The journal from which we have extracted the above relation says—"The case is unique. In all the instances of glanders in the human subject reported hitherto the disease has proved fatal."—*Gazette des Hôpitaux.*—*Lond. Lancet.*

Relative value of Quinine in large doses, as a remedy in Typhus.—The successful results of the practice of Sig. Broqua have been already noticed in the *Lancet*. But a commission appointed to examine into the correctness of a memoir addressed by Broqua to the French Academy of Medicine, reports that some of the cases cited in the memoir are not proved to have been of a veritably typhoid character, and in others no proof is adduced of the quinine administered having been the means of cure. The report of the commission (if not belied by the journal which informs us of its presentation) sarcastically enough remarks, that “one interesting fact confirmed by Sig. Broqua’s memoir is the *harmlessness* (l’innocuite presque constante) of the *sulphate of quinine* in large doses;” and it recommends that the memoir should be *honorably* shelved! In the discussion that followed its reading, Piorry stated, that in typhus fever, with engorgement of the spleen, he had seen quinine prove serviceable, which had not been the case when the fever was unaccompanied with splenic lesion. Martin Solon, who had employed the remedy under the personal inspection of Sig. Broqua at the Hôpital Beaujon, admitted that in cases in which the fever assumed a remittant type quinine was useful, but that remittent typhus was rare—at least at Paris. “Of five severe cases of typhus fever, in which quinine had been given, death had resulted in three instances; and in the two others, recovery had only taken place after a considerable lapse of time, and without any evidence to show that the sulphate of quinine had been the means of hastening it. In the post-mortem examinations of the subjects who had died (says Martin Solon), I failed to detect any peculiar alteration that I could fairly attribute to the large doses of the sulphate; it had passed in a manner imperceptibly through the stomach and intestines. A symptom I observed in those who recovered from the disease was a remarkable depression of the circulation. In short, I consider the advantage attributed to the sulphate to be more than doubtful.” Much doubt was afterwards expressed by several members of the academy as to the *innocuity* of large doses of quinia or its sulphate; but finally the terms of the report were adopted, and the memoir was shelved by a majority of voices.—*Gaz. des Hop.*—*Lond. Lancet*.

Amount of Respiration relatively to Sex and Age.—BOURGERY, in a memoir read before the French Academy of Sci-

ences, asserts that, *cæteris paribus*, respiration is vigorous in proportion as the individual is younger and thinner. No condition is so productive of energetic respiration as youth. The respiration in a man of a given age is double the amount of that of a woman of the same age. At thirty years of age, the period of plenitude of the respiratory powers in both sexes, a man usually respire (*respiration forcee*) from half a gallon to a gallon (2.5 to 4.3 litres) of air (per minute); and a woman, from a quart to less than half a gallon in the same time. A boy of fifteen respire nearly half a gallon; and an old man of eighty, about three pints of air (1.35 litre). A strong man of thirty respire as much as two men of feeble constitution, boys of fifteen, or strong women; and four women of feeble constitution, boys of seven, or old men of eighty-five years of age. The respiration of a strong woman is accordingly equal to half the above amount, as estimated by Bourguery. According to the same authority, the faculty of respiration becomes impaired throughout life by successive ruptures of the air-cells, which inevitably attend all extensive respiratory efforts and other causes. Though these become more frequent as age advances, they occur likewise in infancy, and from the mere respiratory act. All diseases of the lung, however slight, tend also to incapacitate that organ.

Gaz. des Hop.—Lond. Lancet.

Quinine in Intermittent and Remittent Fevers. By S. S. RANSOM, M. D., of Burlington, Iowa.—After several years' practice in the West, where intermittent and remittent fevers prevail, and after watching the medicinal operation of sulphate of quinine upon the system in these diseases, my former views in regard to its operation have become entirely changed. Heretofore I have regarded it as a powerful tonic, and admissible only where there was a perfect intermission (which is, I believe, the generally received opinion). I have, within the last three or four years, given it without regard to the intermission, remission or exacerbation, and with decidedly better success. A remittent very soon becomes intermittent under its use. We will take, for example, a case of *bilious remittent*, which is the most common form of fever in this Valley. After the bowels are thoroughly evacuated with mercurial cathartic, commence with one grain of the s. q. every hour, and it is rarely necessary to continue longer than thirty-six hours before there is a perfect intermission. Before

its use, the pulse was from 100 to 120; skin hot and dry; tongue dry; great thirst; violent pain in the head and back. After the system has been kept under its use for a few hours, all these violent symptoms entirely vanish, and a speedy convalescence ensues.

Now what is the medicinal operation of the sulphate quinine on the system? I know of no article in the whole *materia medica* which produces the same results. It has been accused of producing enlargements of the spleen. I have frequently known it reduce them, and I verily believe that it is among our most valuable remedies in chronic enlargement of that organ.

If you should consider this hasty communication of sufficient consequence, you are at liberty to give it a place in your valuable Journal, for the sole purpose, on my part, of eliciting some light—for it does appear to me that this very valuable article of our *materia medica* is but imperfectly understood. I would propose that some more able than myself in the profession communicate their views, and I may at some future day give a detailed account of the many cases where I have administered the article, and the results.—*Boston Med. and Surg. Journ.*

Remarkable Case of Congenital Small-pox.—A woman, twenty-four years of age, entered the Maternity Hospital in Paris to pass her first confinement. Labor commenced two days after her arrival; and after the lapse of fourteen hours (*jours*, says the original, but this is evidently an error) she was delivered of a female child. The face, scalp, and different parts of the child's body were covered by a pustular eruption, which was soon recognized to be veritable small-pox. The mother retained the marks of vaccination, and stated that she had never had the small-pox; nor during her pregnancy had she had connection with persons suffering under that disease, nor even heard of its prevalence in her neighborhood. Only, about eight or ten days before, she had gone to see a patient at La Pitié, near whom lay another patient in the small-pox. She had paid no attention to this circumstance till recalled to her recollection by minute inquiries. No untoward effects ensued, either to mother or child, and both left the hospital in perfect health soon afterwards—*Bulletin de l'Acad Royale.*—*Boston Med. Surg. Journ.*

Dropsy of the Os Uteri.—Under this name Jobert describes tumefaction of the mouth and neck of the uterus, which most frequently occurs among women of a lymphatic temperament, being, according to his observations, confined to those who have never borne a child, and who menstruate but feebly. Examined by the aid of the speculum, the os uteri is seen to be so much swollen as almost wholly to conceal the orifice, and it gives on pressure a sense of fluctuation. It is uniformly pale and flabby, and may sometimes be ulcerated, but it is not in general organically diseased. On carefully introducing a bougie through the orifice, a quantity of transparent, flocky, light-colored fluid usually escapes from the cavity of the uterus; and, at the same time, the neck and mouth become relieved of a portion of their tumefaction. This event may happen consequent on a spontaneous discharge of the fluid, and always attends more or less the recurrence of the menstrual discharge. The cause of the affection has been attributed to a distension and superabundant secretion of the glandular follicles of the neck and mouth of uterus. For its treatment after the evacuation of the contents of the uterus, Jobert advises free incisions to be made in the os uteri, in the direction from centre to circumference (*dans le sens des commissures*). The granulation of the wounds thus made, produces concurrently, as he says, an enlargement of the orifice of the uterus, which effectually obviates a return of the disease.—*Lon. Lancet.*

THE WESTERN JOURNAL.

Vol. VII.—No. V.

LOUISVILLE, MAY 1, 1843.

TRAVELLING EDITORIALS.

It is no doubt known to most of our readers, that Pensacola Bay is a permanent Navy station, and the only one west of Cape Florida. Having for its object the protection of our commerce on the Gulf of Mexico, it is of special interest to the people of the valley of the Mississippi, and the little sisters—Pearl, Alabama, Escambia, Appalachicola, and Suwana, which enter the Gulf to the east of the great river. We shall not, then, apologize for making our visit to this station the occasion of an editorial; although it may embrace some things not strictly professional, and others with which many of our readers are already acquainted.

The Bay.

What is now called Pensacola Bay, was discovered, three hundred and four years ago, by one of the followers of De Soto, by whom, however, it was not visited. It was then, by the Indians who dwelt on its banks, called Achusi. Its width varies from one to six or eight miles, and its length is about thirty. Lying in the latest tertiary formation, its banks are composed of white and yellow sand.

The long leaved pine is the predominant tree of the forests which surround it, interrupted, here and there, by a cypress and titi (*andromeda*) swamp. The traveller may wander far and wide, without meeting with a more beautiful sheet of water than that on which we are now looking out, from the verandah of the Naval Hospital, in one of whose untenanted wards we lodged last night. Our latitude is a little above the thirtieth degree—our elevation thirty feet over the Bay.

Navy Yard.

This *depot* of munitions of war and naval supplies, is situated on Tartar point, which projects into the north side of the Bay, about three miles from the open Gulf. This point is a bed of white sand, elevated but a few feet above the waters of the Bay. It is said to be an exceedingly healthy spot. Of its buildings, it is not our purpose to speak. Its present commandant is Com. Lavalette; its surgeon Dr. W. A. Spottswood. The officers of the yard are changed every three years.

Forts.

Within sight of the yard, are three forts, two at the mouth of the Bay, on the approximate extremities of Foster's Island and Santa Rosa Island, which are but dunes of white sand, rising a few feet above the tide. The former is called Fort McCree, the latter Fort Pickens. The third, Barrancas, is situated on a higher bank, two miles up the Bay, on its north side. A part of the 7th Regiment of Infantry under the command of Lieut. Col. Whistler, and having Dr. Moore as surgeon, is stationed at these forts. Their object is the protection of the Navy Yard, and of vessels undergoing repair.

Hospital.

The site of this edifice, is between the Navy Yard and Fort Barrancas. The buildings stand on a second bank or higher terrace, twenty-four feet above the level of the Bay, and are almost concealed by live-oaks, pines, and other evergreens; clumps and tufts of which partially obscure the white sand of the plain below. At the level of this plain, in front of the Hospital, several copious springs of soft water burst out, which form basins and then flow off to the Bay in perpetual currents. In the rear, and on each flank of the Hospital, is a plain of yellow sand, over-shadowed with

shrubs and trees of perpetual verdure; and are already, maugre a most inclement and tardy spring, in some degree enamelled with flowers.

The Hospital buildings consist of two principal edifices, connected at their ends by a corridor; of a smaller one in the rear; and of houses for the surgeon and assistant surgeon, in a line with the central structures. Each of these is a parallelogram, surrounded by a broad and high verandah or porch, with an elevated basement. The wards for seamen consist of transverse sections, each sufficient to receive from eight to ten patients; and are admirably ventilated by means of opposite windows. The edifice appropriated to sick officers and midshipmen, has an entry through its centre, with small rooms on each side, which cannot be as well ventilated as the seamen's wards. This entry is too narrow, which results from the inordinate width of the porticos. In fact, the parallelograms might have been made several feet wider, without approaching too near the surrounding colonnades; whereby their capacity would have been much increased at a very small expense. At present there are but nine patients in the establishment. It can accommodate 120, and has been filled to overflowing; which is likely to be the case whenever ships of war arrive infected with yellow fever. Indeed, experience has shown that this is little else than a Yellow Fever Hospital. When the disease of a seaman assumes an exceedingly chronic form, and he is not very ill, or when he has become permanently infirm, he is sent round to the Naval Asylum near Philadelphia. The term of service at the hospital is three years. The present surgeon is the amiable and intelligent Doctor Isaac Hulse, who was present at the founding of the hospital in 1824, and, from requiring, through constitutional infirmity, a warm climate, has been sent here oftener than all the other surgeons of the Navy. At present he has no assistant. Like the other surgeons of the Navy he is allowed to engage in private practice, and is often called to Pensacola, eight miles up the Bay, where he is greatly esteemed for his skill and urbanity.

Navy Surgeons.

As many of our young readers may aspire to places in the Navy, we proceed to say something for their benefit. At present there are 69 surgeons, 60 assistants, and 9 passed assistants. The last are those who stand ready for promotion. To obtain admission into the

Navy, the applicant must first be a graduate, and then undergo a successful examination by a board of surgeons. It often happens that the candidate is rejected! If this occurred still oftener, it would be still better. In private life, people may choose for themselves, and so great is the popular propensity to patronize quacks and dunces, that if thoroughly educated graduates were always offered, they would perhaps be rejected. The Government, however, owes it to our brave and patriotic seamen and officers, exposed to all climates and casualties, to provide for them competent physicians and surgeons. It is due, also, to the character of the nation that it should send out such as will bear a favorable comparison with the surgeons of France and England, who, in times of peace, are frequently brought into communication with ours. As long, then, as our medical schools (without a single exception) maintain their present degraded and contemptible standards of medical attainment, their short sessions, and superficial teachings, it is absolutely necessary to have a naval board of examination—to turn back to the horn-books of the profession, one-third of all who apply. Not having been among this number, the candidate receives a certificate, when he may, if a vacancy exist, obtain an appointment from the Secretary of the Navy. But let him be aware that he is only admitted to probation. At the end of five years, he is subjected to a second and still severer ordeal, the great object of which is, to discover what his improvement has been since the former—whether he has been observing and studious, is a growing professional man, and promises to become eminent—if so, he is made a passed assistant, and ready in due time to become a surgeon. Thus, our young friends will see it is no child's play to get into the Navy—with whatever facility they may have crept into the profession, or may creep into professorships.

Let us now inquire into the motives and advantages of a Navy appointment. A naval surgeon is exposed to the dangers of all climates and localities, and necessarily separated, for long periods, from his friends and family; but, on the other hand, he has diversified opportunities of improvement, pleasant companions, and exemption from the caprices and delinquencies which so often annoy or disappoint him in private practice, and derives importance and dignity from his official rank. But all this—

“Plays round the head, but comes not to the heart.”

The great American question is, which career will fetch in most money? As data for an answer to this momentous inquiry, we shall extract from the Naval Register of our friend Hulse, the following statement of the pay of surgeons and assistants, in 1842.

“Assistant surgeons, waiting orders, \$650 *per annum*—at sea \$950. Passed Assistants, waiting, \$850—at sea \$1200—when stationed at a navy yard, hospital, rendezvous, or receiving ship, \$950. Surgeons, for the first five years after being commissioned, \$1000; for the second five years \$1200; for the third \$1400; for the fourth \$1600; after the 25th year \$1800. All surgeons under orders for duty at navy yards, hospitals, or receiving ships, to have an increase of one-fourth of the above amounts; if ordered to sea, of one-third; and if sent out as fleet surgeons, one-half. The Chief of the *Bureau of Medicine and Surgery*, at Washington, has a salary of \$2500.” From an examination of this table, we incline to the opinion, that if they were all in actual service, the 138 medical gentlemen of the navy, would receive as much as a corresponding number of physicians, taken indiscriminately in any part of the United States out of our largest cities; but it must be admitted that there are many in the navy, who could earn more in private practice.

Navy Ration.

Having got out of port and fairly under weigh, we shall not cast anchor till we have sailed a little further. We suppose that most of our backwoods’ readers have not had an opportunity of knowing on what our seamen subsist, and we will, therefore, proceed to tell them.

The *daily* allowance of each person is—“One pound of salted pork, with half a pound of peas or beans; or one pound of salted beef, with half a pound of flour, and a quarter of a pound of raisins, dried apples, or other dried fruits; or one pound of salted beef with half a pound of rice, two ounces of butter, and two ounces of cheese, together with fourteen ounces of biscuit, one-quarter of an ounce of tea, or one ounce of coffee, or one ounce of cocoa; two ounces of sugar and one gill of spirits; and a *weekly* allowance of half a pound of pickles or cranberries, half a pint of molasses, and half a pint of vinegar.”

“Fresh meat may be substituted for salt beef or pork, and vegetables or saur kraut, for other articles usually issued with the salted meats; allowing one and a quarter pounds of fresh meat for one pound of salted beef or pork, and regulating the quantity of vegetables or saur kraut, so as to equal the value of those articles for which they may be substituted.”

“Should it be necessary to vary the above daily allowance, it shall be lawful to substitute one pound of soft bread, or one pound of flour, or half a pound of rice, for fourteen ounces of biscuit; half a pint of wine for a gill of spirits; half a pound of rice for half a pint of peas or beans; half a pint of peas or beans for half a pound of rice,”

No officer or midshipman, nor seaman under 21 years of age, is allowed to draw the spirit part of the ration; and any one may commute it for money.

It must be admitted, that we have travelled over a substantial bill of fare; and that our seamen are better fed than many of their brothers on shore. The diversity in their diet is highly commendable, and may be regarded as a main reason why they are so seldom affected with scurvy.

Waste of Hospital Liquors.

In the office of the Hospital where we are writing, we find conspicuously pasted against the wall, a circular from Dr. W. P. C. Barton, Chief of the Bureau of Medicine and Surgery, in which he sets forth, that great abuses have existed in the care and use of the liquors provided for the sick; that they have been considered by the officers as a store from which all might borrow, and that payment was generally omitted; that they have been wasted on the well, or on those who did not need them; that it will hereafter be considered a misdemeanor to lend even a glass of wine; and that he believes the necessity of liquors in the treatment of the sick is greatly overrated. It was not without a feeling of mortification that we read an official statement, from such high authority, which presents our naval officers under such a discreditable aspect, and we fervently hope the Chief of the Bureau may be successful in reforming the abuse he has made known to the world.

Assault on the Temperance Reform.

The circular from which we have just quoted, concludes as follows:

“Although the undersigned has not been able to perceive anything but future fatal reaction from the high handed ultra temperance cause so injudiciously, as he believes, expanded beyond its first design, and of course belongs to no temperance society, still the rational community is not entirely swallowed up in the mad vortex. Hence the moral aspect of the subject, in unison as it is with the popular feeling of the judicious temperance advocates of the present world, does not take any thing from the merits of a necessary reform.”

Now we cannot but deeply regret that the Chief of the Bureau at Washington, should have so far stepped out of the path of official duty, as to put forth this denunciation.

What is it, we would ask, that led to the causes he has so vividly depicted, but an overweening love of drink, prompting to an unscrupulous seizure even of all provided for the sick? And what so likely to correct the evil, as to render drinking unfashionable and odious? Why has the government abolished the army ration of spirits, and reduced that of the navy one-half, if drinking is *necessary*? If not necessary for soldiers, why is it necessary for people in private life? If soldiers are not allowed alcoholic drinks, nor suttlers allowed to sell them, the army, in theory, is a *total abstinence* temperance society; but according to Dr. Barton, this is fanatical, and if so, the spirit ration ought to be restored. Does he not know that total abstinence is the best method of moderating the desire for drink; and that the “gill a day” for the navy is a means of keeping alive the propensity? He tells us, that the “*rational* community is not *entirely* swallowed up in the mad vortex.” This is true. There are a *few* rational friends of temperance who have not been drawn into it, but the number is very small. The “mad vortex” has spread itself over the whole country; and is not likely to contract, notwithstanding the Doctor sees nothing ahead but “future fatal reaction.” He deprecates the “high handed” proceedings of the friends of temperance! But what are they? Is it a “high handed” proceeding, for a man to resolve and declare that he will not again lift the intoxicating bowl as high as his mouth? Is it “high handed” for a man to decline drink, when it is offered to him? Is it “high handed” to neglect to ask others to drink? Is it “high handed” to persuade our officers and seamen not to rob the sick of the wine provided for their relief? Is it “high handed” for a phy-

sician to tell the people, of whom he is the medical adviser, that they would have better health if they did not drink at all? Is it "high handed" for us to ask the Doctor, whether every seaman and officer of the navy would not have firmer health, greater strength and activity, a milder temper, and a more willing heart, if he should never again taste a beverage more stimulating than tea and coffee? Is it "high handed" for benevolent men to address the intemperate, and implore them not to lay waste their habitations and beggar their wives and children? If it be, then the friends of the temperance reform *are*, indeed, "high handed;" and we trust will continue so forever. D.

Navy Hospital, Pensacola Bay,
March 30th, 1843.

THE
WESTERN JOURNAL
OF
MEDICINE AND SURGERY.

JUNE, 1843.

ART. I.—*St. Louis Hospital Reports. No. 1.* By M. L. LINTON, M. D., Professor of Obstetrics in the Medical Department of the University of St. Louis.

I propose under the above caption to detail, in as concise a manner as possible, some of the more interesting surgical cases treated by Professor Brainard, of the Medical Department of the University of St. Louis. I proceed then directly to my task, and *first* to two cases of ununited fracture of about twelve weeks standing, treated by the starch bandage, or *immoveable apparatus*.

One was a fracture of the humerus just below the insertion of the *pectoralis major*. It had been treated by the ordinary method—wood splints, &c.—without success. A simple roller was now applied to the arm; four pieces of book-

binder's pasteboard moistened were placed over the roller, the *outer* piece of pasteboard extending to the tip of the shoulder. On these was spread a coating of dissolved starch; and another roller, imbued with the same, applied over the pasteboard. A simple roller binding the arm to the body (a thick compress having been placed between them) completed the dressing. I should remark, however, that two wooden splints were applied, to remain until the starch should dry, when they were removed—the apparatus becoming *so firm* as to deserve the epithet "*immoveable*." At the end of seven weeks this apparatus was removed, when consolidation of the fracture and the form of the member were found to be perfect.

The *second* was a case of compound fracture of the tibia, accompanied by extensive laceration of the soft parts. This had been treated by the *fracture-box* until the *opening* and the injuries of the soft parts were healed. The immoveable apparatus was applied as before; two layers of the dry roller being applied next the skin. This case was not so fortunate. At the end of six days the member became painful; the apparatus was removed; and several ulcerations at the points of injury were observed. In his observations on these cases, the Professor remarked that they were well calculated to illustrate the advantages and disadvantages of the immoveable apparatus, about which so much had been lately said. In the first case, the skin being intact and the bone covered by soft parts, no ill effects occurred, and the cure was effected with a facility afforded by no other method. In the second the bone was but slightly covered with soft parts, and neither these nor the newly formed cicatrices were able to resist the pressure of the apparatus. It is recommended to leave openings in the apparatus corresponding to the ulcers, or to the openings in the soft parts in compound fractures; but even with this precaution it is difficult sometimes to prevent the formation of ulcers and the discharge of thin secretions beneath the bandage. Still the apparatus must not be blamed on account of *occasional* ill effects. When applied over recently formed tissues, or bony projections, these should be

guarded by compresses of lint or cotton. But even with all these precautions bad effects *may* follow: thus the Professor had seen a case in the wards of Velpeau, in which a *simple* was converted into a *compound* fracture of the tibia, by the pressure of the extremity of the bone against the unyielding bandage; and death was the result.

Applied with caution and discrimination, it is invaluable in a great many cases—ununited fractures of the neck of the femur, or through the trochanters, are of this kind, whether the object be to effect a bony union or simply to allow the patient to walk about (on crutches) without great pain. The pieces of pasteboard in these cases should extend from the knee to the crest of the ileum, and the roller should be applied firmly around the pelvis as well as thigh. In a case of this kind, in which the patient was kept on his back until his health was so much impaired as to excite apprehensions for his safety, the apparatus thus applied enabled him in less than two weeks to walk about on crutches; the forces of the system were gradually restored.

In chronic cases the application of the damp rollers is liable to be followed by rheumatic inflammation. This should be guarded against by the sparing use of the starch, and by the use of warm applications until it is dried.

CASE III.—*Varicose veins treated by needles and ligature.* The subject aged fifty-five years, had varicose veins of both legs attended by chronic ulcers. This case was of twenty-six years standing. The Lecturer remarked, that the propriety of attempting the radical cure of varicose veins had been called in question by many surgeons; it had also able advocates. This conflict of opinion had, he thought, arisen from the confounding of two different states of the veins. Varicose veins are produced by the obstruction of the venous canals to a *partial extent*, as is observed in pregnancy—varicose states thus induced, or by similar causes, are distinguished by a knotted appearance which arises from the hypertrophy of a portion of the circumference of the vessels; these enlargements appear first at the valves; increasing, the valves are

forced and give way, the upper ones first, the lower ones as the disease advances. In the case before you, said the Professor, if you place your finger upon these enlarged branches below the knee, and then give a quick stroke upon the *saphena* where it dips down to join the femoral vein, you will feel the shock *below*, showing that the valves are imperfect. There is another class of enlarged veins, produced by the perfect obliteration of certain important venous trunks. The collateral veins enlarge to supply their place; these latter are hypertrophied in every sense of the term, and, when superficial, can be seen running in a serpentine or zigzag manner under the skin. He had seen an example of this vicarious enlargement in the service of Cruveilhier, in which, from obliteration of the ascending cava, the subcutaneous abdominal and thoracic veins were enormously enlarged; and another in private practice, in which the same result followed obliteration of the *saphena*. The difference between these kinds of cases is obvious: in the first, the circulation is retarded in the enlarged vessels; in the second, it is increased, these latter deserving the name of *suppleant* or vicarious veins. It would be bad practice to obliterate these; the former only call for an operation. But would it not be better to confine our efforts to palliatives? say the roller, laced stocking, and starch-bandage? The gravity of the disease and the great length of time required for such means to effect any thing, prevent us from hoping much from them. Let us examine then the different modes of obliteration. We pass over the ligature, excision, &c., as practised by the older surgeons, and come directly to the two favorite methods of the present day, viz: *the caustic* and *the needles with ligatures*. The latter of these methods is principally advocated by Velpeau. He passes a needle behind the vein and embraces it with a thread, as in the twisted suture, *so firmly as to occasion a sloughing* of the comprised vein and integuments. This usually causes but little pain or inconvenience. In twelve hundred cases operated in this way by Velpeau, but *one* death has occurred. The former method, practiced by Berard at the Necker Hospital,

consists in the production of the slough by the use of the potassa fusa, or the potassa cum calce. In both methods the same result is arrived at—the vein is obliterated. Berard already (eighteen months since) boasts of one hundred cases treated in this way, without one death. But, added the Professor, in visiting his wards I observed numerous cases of troublesome abscess, clearly the result of this mode of treatment. For this and other reasons I prefer the method of Velpeau. The Professor then operated as already indicated, placing the needles under the two principal trunks of the enlarged veins. At present, after four weeks, the veins are obliterated and no ill effects have followed.

January, 1843.

ART. II.—*Amputation of the Right Arm at the Shoulder Joint.*
By T. A. TELLKAMPF, M. D., of Cincinnati, Ohio.

Feb. 5th, 1842. Anthony Newhouse, aged twenty-five, and of healthy and vigorous constitution, a workman in Mr. W's. steam-brewery near this city, got entangled in the connecting cogs of the large transverse wheels of the machinery of the establishment, was drawn in between them, and pulled through to the other side, where he was soon after found. The bones of the right hand were almost entirely crushed; the muscles of the forearm were torn and lacerated, and bore the marks of the cogs; the arm was broken and crushed in its central portion, the splinters of bone projecting here and there—forming almost an indistinguishable mass of bone, muscular substance, muscles, nerves, bloodvessels, &c. The nerves and vessels were to some extent isolated. The upper and lower extremities of the humerus were both split, the fissure extending into the joint, as was ascertained by motion. Besides these, the patient had received other and severe injuries. The skin and muscles along the right side down to

the pelvis (upon the edge of which the wheels had apparently rolled off) bore the marks of the cogs; three ribs were fractured; and there were wounds from four to eight inches long in the abdominal parietes, some of them penetrating to the peritoneum. The patient was removed to a house adjoining the brewery, where on my arrival, I found him, faint from pain, not from hemorrhage of which there had been little. As there was reason to apprehend tetanus from the increasing sensibility of the patient, with the assistance of Dr. Emmerth, who was with the patient when I arrived, I prepared for operating on the arm immediately, amputation at the joint being evidently the only remedy that could be adopted.

The patient was put in the proper position and some of his fellow workmen directed to hold him. Dr. E. compressing the subclavian artery, I drew the arm a little outwards from the body, and passing the knife over the shoulder, I cut first downwards from the top of the shoulder on its upper and outer surface to about the point of insertion of the latissimus dorsi and teres major muscles; thence returning with it in the same cut to about two finger's breadth below the acromion, I passed downwards and inwards on the arm towards the point of insertion above named, and to within about two finger's breadth of it. With this nearly circular cut, the skin and all the muscles of the arm at the shoulder were severed and the socket laid bare; passing back in the wound, the socket was fully opened. Raising the arm up out of its socket and passing the knife over the head of the humerus, the remaining portion of the ligaments and the muscles underneath were cut, and then nothing remained but to sever the part of the skin left uncut between the ends of the first named nearly circular incision, which I did from without. I have followed in this the method of Langenbeck, who first introduced and applied it in Germany, and gave the operation the name of extirpation of the humerus. The time required is about half a minute. The wound that is left forms a perpendicular line.

The arteries and veins being secured, after a little I dressed

and bandaged the arm, using sutures secured by strips of adhesive plaster. It is not necessary to give details of the subsequent treatment. The patient was placed in such a position as to keep the fractured ribs in apposition. Some tendency to cough was manifested; he complained of great pain in the right side of the chest and abdomen, and in the region of the kidneys particularly.

The following day (*Feb. 6th*) the wound was a little swollen, not painful; slight cough; the pains in the right side of the breast and abdomen increased.

Feb. 7th. The face flushed, pulse full and soft; tongue coated; no pains in the breast; breathing freer; no blood was raised with the phlegm from the cough; severe pains still in the right side of the abdomen, none in the left; bowels loose; urine brown, clear and without sediment.

Feb. 9th. The wound of the arm was healed about two-thirds down from the shoulder; moderate discharge of pus from the lower part of the wound. I found one of the wounds in the side discharging serum and pus from near the os sacrum, and the probe could there be introduced about four finger's breadth in the direction of the kidney; urine still clear and without sediment. Suppuration under the contused skin of the abdomen very copious; the most contused parts commenced mortifying, to which warm aromatic poultices were applied from the beginning.

Feb. 14th. Copious discharge of serum from the above named fistula: a seton applied, and after two or three days no serum flowed out; I opened this and several other fistulous canals with the knife.

Feb. 16th. The patient free from pain, and the suppuration under the skin of the abdomen very free, but favorable.

The first ligature of the shoulder was removed on the *18th*, (thirteenth day from the injury). The patient improved gradually and equably. Upon the sloughing off of the skin of the abdomen, I had it dressed twice daily with lint. The only drawback to his recovery was his endeavoring (*March 10th*) to heal up the the suppurating surface on the abdomen faster than I had intended, by using of his own accord a solu-

tion of nitrate of silver I had formerly used on the other parts, and the favorable effect of which he had noticed. This checked the suppuration, brought on pains in the abdomen, and caused a swelling of the left leg. By reproducing the secretion, these symptoms passed off and the patient recovered rapidly. A generous, nourishing diet was directed for him, to keep up his strength whilst suppuration lasted. The wound of the arm was healed about the 5th of March. In the beginning of April, when the wounds of the abdomen were almost healed up, I applied two setons on the breast. The latter wound left a smooth surface, no folding of the skin so as to inconvenience him at all in walking or otherwise. He has regained his usual health.

March, 1843.

ART. III.—*Cases of Tardy Fecundity.*—Translated from a French manuscript* for the Western Journal of Medicine and Surgery. By DANIEL STAHL, M. D., of Vincennes, Indiana.

Fecundity of a man 99 years of age. John Moulard of Berri, died in 1710, at the age of 110 years, almost sound in feeling and judgment. He had married 10 wives, the last at the age of 99 years, she being 18 years old. Two years after she had a son.—*Almanach des Centenaires* of the year 1761, p. 67.

of a man at 100. A peasant died at Sinkoping, in Sweden, at the

* I received this manuscript from a highly valued and now departed friend, who, while pursuing his medical studies at Paris, collected the above cases. Exchanging subsequently the ministry of the body for that of the soul, I feel some delicacy in giving his name to the public, which moreover is the less necessary, as the reader, in most of the cases related, can refer to the sources whence they have been derived.

age of 108 years; was married to the third wife at the age of 100 and had a son from that marriage.—*Journal de Verdun*, 1754, p. 103.

Fecundity of a man 92 years of age. Antoine Nonathac, in Limausin, died in 1757, at the age of 115 years; married three times; the second time at the age of 92, from which marriage he left some children; and the third time at 102 years.—*Affiches de Paris*, 1758, page 191; *Gazette de France*, 1758, page 139.

of a man at 86. Massinissa, king of Numidia, had at 86 years of age, a son born to him, named Metimnatus.—*Valer. Maxim.*, book 8, ch. 7.

of a woman at 59. Mary Volmerange died at Metz, at the age of 100 years, in 1742, had 24 children, the last of which she had at the age of 59.—*Etrenne Mignon de 1743*.

of a man at 91. Chevalier Bulstrade died at St. Germain, in 1711, at the age of 105; had 17 children, the last of which was born to him in his 91st year.—*Almanach des Centenaires*, 1761, p. 40.

of a woman at 106. A woman of Carpentras, still had her catamenia at the age of 106 years.—*Memoirs of the Academy of Sciences*.

of a man at 105. The Journal Encyclopedique of the year 1779, relates the case of a man then living at Tau, who at the age of 110 was very active (trés agile). He married at the age of 105 a young girl, who two years afterwards had a child by him.

of a man at 88. In 1762, near Varlovie, at the place of Mr. Zaluski, Staroste of Goujeck, there died a peasant at the age of 157 years. At the age of 88 (after having lived 58 years with his first wife) he married again and had 7 children.

of a man at 82. Jean Rovin died in Hungary, in 1740, at the age of 172 years; his wife was 164 years old. They lived together in wedlock 147 years. At the birth of their youngest son, the father was 82, and

Fecundity of a the mother 74 years old.—*Mercure de France*, woman at 74. 1756, p. 157; *Journal de Verdun*, 1740, p. 299; *Alman. des Centenaires*, 1761, p. 122.

of a man at 88 Pierre Zorten, of Hungary, died in 1724, at years of age. 185 years of age; had a son born to him at 88.—*Journal de Verdun*, 1740, p. 299; *Mercure*, 1756, p. 157.

of a man of 80. A man 80 years old had his wife pregnant with the 6th child.—*Hobuken Epist.* 13.

of a man at 110 Two brothers cited by Buffon. and one at 112 years.

of a man at 70. This man gave no manifestations of puberty until he was 50 years of age; he was married at 70 and had 5 children, and died at the age of 120. *Buffon*, tom. 8, p. 132.

of a man at 90. A Spanish surgeon in the diocese of Commin- ges was married to his second wife at the age of 90 years, and became father of a very vigo- rous daughter (*une fille très vigoureuse*). Died at 112 years.—*Gazette de France*, 1759, p. 60; *Af- fiches de Paris*, 1759, p. 12.

of a woman at 69. A woman of 69 years menstruated, but was sickly.

of a woman at 79. A nun menstruated at 79 years of age.

of a woman at 80. Two women of more than 80 years menstrea- ted. Cited by Louis Courseur.—*Enc. Meth. Me- dicin.* tom. 2, p. 506.

of a woman at 67. Valesins has seen a woman having a child at 61 and continue to have them to the age of 67.

of a woman at 70. A woman in Avignon had a son at 70 years.—*Paré*, in folio, p. 623.

of a woman at 83. In the diocese of Seeze, a man of 94 years, married a woman of 83, and they had a son to- gether. The Bishop of the Diocese, who knew them, cited the fact to the Academy of Sciences, and it is reported by his historian.—*Merveilles de la Nature*, art. *Fecundité*.

- Fecundity of a man at 95, and a woman at 65. In the Journal Politique, of 1773, it is stated that the wife of Sieur Grant of Newri, aged 65 years, was delivered of a son; and to heighten the marvel of this circumstance, it is stated that the father, Sieur Grant, was 95 years of age.
- of a woman at 60. A woman of 60 years was delivered of two sons (twins) at Sally, in Hungary.—*Extrait des Annales de la Republ. Francois, Journal du 27 Vendemaire, an 7.*
- of a woman of 60. (Goulard has given the details.) A noble Venitian lady, was delivered at the age of 60, after a pregnancy of 15 months. (Two facts very apocryphal.)—*Nouvelles Observations sur les naissances tardives.* Paris, 1765, p. 95.
- of a woman at 60, and a man at 70. Goulard. Another noble Venitian lady, aged 60 years, had a daughter by her husband, aged 70.—*Musa Epist. 29, t. 2.*
- of a man at 80. Cato, at the age of 80, impregnated the daughter of one of his clients.
- of a man at 100. Nicholaus, of Polavicene, had a child born to him at the age of 100 years.—*Ibid.*
- of a man at 100. Leninius cites the fact of a man aged 100 years, who married at Stockholm a woman of 30, and had several children by her.—*Ibid.* p. 96.
- of a man at 100. Platerus, Liv. 1. observes that his great father on his mother's side, aged more than 100 years, married a girl of 30, and had a daughter; and
- of a man at 77. that his father, Thomas Platerus, married at 77 years of age, and had 6 children.
Ibid. p. 96.
- of a man at 73. Segismund Polastre, a physician, who taught Philosophy at Padua, having had the misfortune to loose his 4 sons, married again at the age of 70, and had yet 3 sons. He died at the age of 94 years.—*Recueil d'Histoires de Simon Goulard.*
- of a woman at 54. The Countess of Fiasque, had, at the age of 54, a daughter by her husband older than herself.—*Ibid.*

Fecundity of a woman at 67.

A woman who menstruated yet at 60 years of age, had 3 children after the age of 67 years.
Ibid.

of a woman of 68, and a man of 78.

“The Countess of Chaumerai, aged 68 years, was delivered, on the twenty-ninth of November, 1797, of a hardy son, at Castillon, Department de la Dordogne; the father is 78 years old.”—
Extracted from public papers of that date.

ART. IV.—*Congestive Fever.* By M. M. PALLER, M. D. of St. Louis, Mo.

Amongst the various forms of fever which prevail in the south-western part of the United States, there is none more entitled to the investigation of the pathologist than that which has been called Congestive Fever. The frequency of its appearance, and the ravages it commits, seriously demand that it should be studied with a view to ascertain its true nature, so as to enable us to meet it promptly, energetically, and skilfully. The investigation of disease requires something more than a mere observance of symptoms; it is necessary to trace those symptoms to their causes, to understand the pathology of morbid actions, and to apply judiciously our therapeutical indications.

Impressed with this view, the writer of this essay endeavored, during a residence of seven years in Vicksburg, Mississippi, to embrace the many opportunities he had of studying the nature of this formidable malady, and to ascertain the best method of curing it. The observations he has collected, although made in latitude 32° 30' may not be inapplicable to a more northern one, as from the recorded experience of those who have seen the disease in various parts of the United States, he is induced to believe that it is essentially the same.

Symptoms.—The manner of the invasion of congestive fever varies. Some persons are taken down suddenly, without any premonition; others experience for a period, varying from one to four days, feelings of languor, lassitude, and the usual symptoms preceding other fevers; whilst in a third class, it will take the place of the cold stage of an intermittent, whether tertian, quotidian, or double tertian.

When the disease manifests itself, there is usually great depression of the muscular powers. The skin is of a pale ashy hue; it loses its natural elasticity, and if pinched up with the fingers, it will retain the form so given to it, being unable to regain its natural position. There is an icy coldness over the whole of the extremities, but some heat about the thorax and epigastrium; great restlessness—the patient tossing himself from one side of the bed to the other; when the intellect is not disturbed, the eyes have a peculiar expression of restless anxiety. There is great distress about the epigastric region, as if a weight were pressing on it. The respiration is hurried and oppressed, and the patient endeavors to assume the erect position in order to breathe freer. The pulse is small and frequent, and often very feeble. The tongue is paler than natural, covered with a thin white fur, and moist. There is usually nausea—sometimes vomiting. The thirst is intense. The bowels are generally loose, and the discharges are thin and of a dirty grayish aspect; if the liver be engorged, the dejections become reddish, and look like water in which butcher's meat has been washed. Such are usually the symptoms, when the encephalon does not bear the weight of the disease. But it sometimes happens that this organ is the first to suffer. In such cases the patient is seized at once with profound coma—the eyes are fixed—the limbs are rigid, and there is a total want of sensibility. Needles run into the skin provoke no evidence of being felt—the strongest rubefacients make no impression; the temperature of the surface is here also very unequal, the extremities being icy cold, whilst about the head and over the chest it is more elevated, The bowels

are not so liable to be loose as in other cases, but if so, the discharges are involuntary. The pulse is oppressed, intermittent, and sometimes almost imperceptible; respiration is performed with difficulty.

Such conditions as the foregoing will continue from eight to thirty-six hours, and, unless reaction be established, will terminate in death. If reaction come on, by the force of the vital energies, it will usually do so from three to eight hours from the commencement of the attack. The reaction however, under such circumstances, is very imperfect. There is some elevation of temperature over the thoracic and abdominal regions. The extremities lose their icy coldness, but do not attain a natural heat. The skin is dry, or else covered with a profuse and exhausting perspiration—the pulse is fuller than it was, but still weak, compressible and frequent. There is, however, a great abatement of the restlessness and the functional distress generally. This feeble stage of reaction lasts until the next paroxysm comes on—usually, however, this is not so severe as the first, and such a state of things might throw the practitioner off his guard. The third paroxysm is more severe than the second, as will the fifth be more severe than the fourth. In this manner the disease is analogous to a double tertian intermittent. Cases are sometimes met with, however, in which the reaction is not only complete but very violent. This stage of reaction lasts from twenty-four to forty-eight hours, then to terminate in a collapse from which the patient never recovers by the unaided efforts of nature.

Anatomical Characters.—The morbid appearances found in persons who have died from congestive fever are various, but they agree in showing an abnormal accumulation of blood in some of the viscera. In the cavity of the head we sometimes find the arachnoid membrane to be injected, and the vessels of the brain distended and engorged with blood.

In the thorax, the lungs are nearly always engorged, and when cut into, exhibit portions of a dark red or brown color.

In the abdomen, the mucous membrane of the stomach and duodenum is usually injected—presenting that dark vascularity to which the term venous congestion is applied. The intestines sometimes partake of the same condition—sometimes do not differ from their natural appearances.

The liver is frequently gorged with blood, presenting a purple appearance; the density of its structure is sometimes increased, but more often it is softened.

The spleen is always affected—there is an increase of its size and consistence—it is easily torn—its normal structure is destroyed, the interior being pulpy and of a reddish black.

Nature.—The nature of congestive fever can best be investigated by an inquiry into its proximate cause. The lesions revealed by the scalpel are too evidently the result of the disease, to induce the pathologist to appeal to them to elucidate the morbid actions which produce its phenomena. We must clearly then study the disease itself from its inception to its termination, through all its phases, to arrive at its true nature. By doing so we are led to believe that the proximate cause of congestive fever lies in an irritated and perverted condition of the nervous system. The morbid cause, whatever it may be, which produces the disease, exerts its influence on the nervous system, by which innervation is no longer distributed in a healthy and regular manner. The suddenness of the attack in many cases, followed by profound coma, the stertorous breathing, the insensibility to all kinds of irritants, the diminished temperature, unequal in different parts of the body, the great restlessness, the periodicity of the attacks in cases where reaction comes on, all point to the important parts which the nervous system sustains in the disease. The nervous fluid which it supplies to the different organs of the body, to enable them to perform their functions, is no longer sent out in an equable and healthy manner; the harmony of actions in the human system is broken up, the heart and arteries, and capillary system, no longer perform their duties; the circulation of the

blood becomes retarded, congestion of the internal organs takes place, secretions are arrested, or depraved; the capillaries no longer receiving their due supply of arterial blood, and innervation being perverted, calorification is altered and partially arrested—hence the diminished and unequal temperature.

Causes.—The predisposing causes of congestive fever are sufficiently obscure. They are unquestionably those which produce ordinary intermittent fever, but in a very concentrated state.

Congestive fever usually prevails in those localities where intermittent fever is rife; in fact, as has been observed above, a disease which commences as a well marked case of intermittent fever, will sometimes terminate in as equally well marked a case of congestive fever. Whenever this occurs it is in old persons, or those of an infirm constitution, or in habitual drunkards. We may well assume that congestive fever is nothing more than a malignant intermittent, with very little, or no power of reaction.

The exciting causes can be frequently traced to exposure to rain, when the body is heated and perspiring; more frequently it can be traced to the direct rays of the solar heat; hence in the south, laborers in the fields, and mechanics who work in the open air, are more frequently attacked than others. Often, too, it follows a simple remittent and intermittent by the abuse of evacuants; a powerful cathartic, which, by inducing large watery stools, prostrates the vital powers, converts those diseases into congestive fever. But this is really merely changing the quantity of disease.

Treatment.—Bloodletting has been highly recommended as a remedy of great value. It is supposed “to promote reaction by diminishing the load under which the heart and other vital organs are laboring.” A little reflection however ought to convince us of the impropriety of this view. The morbid phenomena do not depend by any means on a mere physical accumulation of blood in the central organs. There is a previous cause which has produced the retreat of the blood

from the periphery, and which continues to act. This is the change wrought in innervation by the lethiferous influence of the agent which has impressed the nervous system. The congestion is not owing to the amount of circulating fluid. The system is not laboring under too much blood, but an unequal circulation of it. Withdrawing any quantity will not prevent this unequal tendency to particular organs. If an animal be bled to death, autopsic examination will show, that notwithstanding the amount of blood lost, in fact in consequence of that very loss, congestion of the brain has ensued. Every one who has been extensively engaged in the practice of obstetrics, has had an opportunity of seeing symptoms of a marked determination of blood to the brain in women who have suffered from profuse uterine hemorrhage. Clearly then, the diminution of the quantity of the circulating fluid cannot prevent congestion. It seems to be independent of the amount of blood in the system. When it follows the loss of blood, it results from a nervous irritation which itself is produced from that loss; thus exhibiting how intimately the nervous and circulatory systems are connected, and how they act and react on each other. It is not pretended to be denied that plethora may induce a condition that will produce congestion, but the manner of action in such cases is obvious. We can now see that bloodletting, if it is to act in this purely physical manner, is useless. But it is worse than useless. It is pernicious. What have been the results of experiments made to test the accuracy of Dr. Mackintosh's views of the use of the lancet in the cold stage of an intermittent fever? They show that the plan has a great tendency to convert the intermittent into a remittent or continued fever—a result always to be deprecated. If this be the result in many cases of simple intermittent, what can we anticipate in the malignant form, known as congestive fever? where the powers of life are so nearly overwhelmed, that the patient looks as if he were in the collapsed stage of Asiatic cholera! It is true that in many cases of simple intermittent fever bloodletting has been practised in the cold

stage with advantage. But such cases are easy of explanation. They arise in persons who are laboring under an inflammatory affection of some organ, and the congestion which ensues, as the result of deranged innervation during the cold stage, is accumulated upon this inflamed organ. In such cases, the increased hyperæmia might be productive of bad consequences—and in such cases the system will bear the loss of blood, in accordance with the general law which establishes a greater tolerance of bloodletting whenever an inflammatory diathesis prevails. Thus we often see persons of a weak habit of body bear the loss of a large amount of blood in some acute inflammation, which they could not do, even in a state of health.

In the present state of our knowledge it cannot for a moment be supposed that the phenomena of congestive fever are owing to the deleterious effects of the venous blood accumulated in the viscera. Researches have proved that venous blood enables the nervous system and the various organs of the body to preserve their vitality much longer than when the blood has been entirely withdrawn, and therefore it cannot be poisonous to the functions of innervation, &c. (*Influence of Physical Agents on Life*, by Dr. W. F. Edwards). In truth, if the pathology of the disease be a lesion of innervation, the nervous system being in a state of sedation and irritation, it would be as rational to bleed in the oppressed stage of it, as it would be to bleed in a case of violent concussion of the brain before reaction came on. Bloodletting by diminishing the amount of the circulating fluid lessens the probabilities of reaction, and thus increases the danger. But after reaction is established, it may be necessary to withdraw blood under circumstances and in the manner presently to be described.

The indication in the oppressed stage of congestive fever is, to rouse the nervous system so as to enable it to perform its functions. Remembering that although there is depression of the vital manifestations, there is also an irritated condition, in which the nervous fluid is unequalled and misdirected, we must resort to those remedies which are capable

both of stimulating and tranquillizing the nervous system. Steadily bearing in mind however the proneness of congestion to run into inflammation, we should avoid those stimulants which would be apt to create an inflammation after reaction came on. Fortunately however our art has afforded us remedies well adapted to this disease—and these are quinine and opium. The utility of opium in allaying the irritability of the nervous system is well known. Its use in cutting short the cold stage of an intermittent is beyond doubt—quinine has powers of exciting the nervous system with but little danger of lighting up inflammation. In addition to these, it is proper to use the cold dash, frictions, &c., in the manner now to be described.

If called to a case during the stage of depression, it was the custom of the writer to give about ten grains of the sulphate of quinine with a grain or two of opium, to be repeated every two hours until reaction came on. If the stomach was too irritable to bear this, it was used in injection, taking care that the vehicle should be so small in quantity that it would be retained; at the same time endeavors were made to restrain the irritability of the stomach by means of small pieces of ice (when it could be obtained), sinapisms to the epigastrium, the effervescing draught, &c.

In addition to the method of reaching the nervous system by remedies administered internally, its peripheric extremities so profusely spread over the cutaneous tissue were appealed to. With this view the cold dash was used. This remedy might seem in such cases less consonant with reason than bloodletting. To dash cold water over a person already so cold that his skin feels like ice might appear not rational. But when we remember how great an excitant to the nervous system the cold *douche* is, its efficacy will no longer be doubted. Hence if one falls into a state of syncope, the first thing that suggests itself to the bystander's mind, is to throw cold water into the face. Hence too, when a patient is laboring under narcotism, the same remedy is universally used.

The method of applying the cold dash is to place the pa-

tient on the floor and having a tub of cold water at hand, and taking a pitcher full, to pour a stream over him, from an eminence of about six feet, taking care to move the pitcher so that the fall of water shall strike the head, thorax and abdomen, in rapid succession. Having continued this until signs of reaction are manifested, he is to be removed into bed enveloped in a blanket, and frictions are to be applied assiduously all over the body. This may be done with the bare hand, or with a piece of flannel or the flesh brush dipped into spirits of turpentine.

Under this treatment reaction is often established; if the stage of depression come on again, the same remedies are again to be used.

When reaction is established we are to guard against inflammation. This does not often occur. If, however, the disease has been ushered in with diarrhœa, and there is tenderness on pressure over the abdomen, the reaction is apt to be violent, and if not checked will terminate in a fatal collapse. Here is apt to arise a case complicated with enteritis. Under such circumstances we must rely on local blood-letting, emollient fomentations, and small doses of calomel, combined with opium and ipecac., administered at intervals of two or three hours. To this treatment the phlogosis will generally yield. Sometimes in persons of a plethoric habit, the brain seems to suffer after reaction. Here, the application of the cupping glass to the back of the neck, cold applications to the head, sinapisms to the feet, and mercurial cathartics, will remove the symptoms. Having subdued the local irritation we resort to quinine in sufficiently large doses to prevent the recurrence of the paroxysm. It may sometimes happen that we have reason to suspect local irritation, and yet dread the return of another paroxysm which may prove fatal. This happens in old persons, and in those of an enfeebled constitution. Are we to subdue the local irritation first and wait to give quinine? or to give the quinine before the local irritation is quelled? The writer's practice was, never to run the risk of a second paroxysm under such

circumstances—as soon as the first one was off he gave 10 grains of quinine, using at the same time extensive counter-irritation over the seat of the suffering organ. With this view a sinapism was applied until a deep redness of the skin was produced, and then a vesicatory was applied over the part. The quinine used in this manner never produced any bad consequences, whilst it averted the danger of a second attack.

In the large majority of cases, however, the period of reaction is not marked with any inflammatory condition. Our attention must be directed to keeping off the return of the paroxysm. We of course then use quinine fearlessly, and it is well to commence as soon as the stage of reaction has come on; because quinine is not a diffusible stimulant, and requires some time before its effects on the system are felt—at least it certainly requires that it should have been introduced into the system some hours before its anti-periodic effects are developed. In cases, therefore, which are not complicated with diarrhœa, we omit the opium given with the quinine in the stage of depression, and continue the quinine as before.

If diarrhœa should be present, which is often occasioned by irritation in the ganglionic system of nerves, whereby the balance between the exhalents and absorbents is lost, and a large quantity of fluid is poured into the intestines, we must continue the opium. When the reverse happens, and we have costiveness, it is necessary to keep the bowels open with mild cathartics and enemata. After the period of the anticipated return of the paroxysm is passed, it is proper to allow the patient generous but not stimulating diet, and vegetable tonics; as his health suffers from the effects of the disease for some time afterwards.

April, 1843.

ART. IV.—*A Case of Pneumonia produced by Asphyxia.*
By G. W. BAYLESS, M. D., Demonstrator of Anatomy in
the Louisville Medical Institute.

On the 17th of October last, I was notified to attend an examination of the body of Brayer, at the Louisville Marine Hospital. He was thirty-one years of age, had been laborer and boatman by occupation, and had generally enjoyed good health. It was said that both his father and mother had died of phthisis, but that no symptom of the disease had ever manifested itself in him.

According to the account given by those who took him to the Hospital, he fell overboard from a steamboat at the Vicksburg landing, about the 26th of September. After remaining some minutes under water, he was taken out, to all appearances lifeless; he lay totally insensible for several minutes, but, by some means or other, was finally resuscitated. He remained on the boat, which soon left for Louisville; and as he said himself, he was taken sick immediately. On the way, he had a dull pain in the left side, accompanied with cough and expectoration of some kind. He took no medicine on the way; the trip occupying about ten days. At the time that he entered the Hospital he was still laboring under the symptoms above enumerated, the expectoration being an opaque yellow mucus, sometimes presenting a rusty appearance. The ordinary physical signs of pneumonia, added to these functional ones, served to render the diagnosis of the case very plain. The treatment to which he was subjected in the Hospital, consisted of general and local bloodletting, blistering, the antimonial, and finally, I believe, the mercurial treatment. The above concise history of the case, is substantially that given by the attending physician, Professor Caldwell, just prior to the examination.

AUTOPTICAL APPEARANCES SIX HOURS AFTER DEATH.

Thorax.—Deposition of recent and imperfectly organized coagulable lymph over a great portion of the anterior part of

the left lung, producing slight adhesion. On the posterior part of the same lung there was also copious deposition of lymph, likewise recent, but more perfectly organized, and producing a stronger adhesion. Very near the apex of this lung, on its anterior part, was a flattened and somewhat circular cavity, about an inch and a half in diameter, which contained about a teaspoonful of pus. It was essentially a pleuritic abscess, and its walls consisted of pretty firm false membrane. On the posterior part of the right lung there was likewise a deposition of recent lymph, but not so copious as on the left side, and the adhesion was not so strong. The right lung was greatly engorged with blood throughout, and there was a circumscribed portion about the size of the fist, near the middle of its back part, in a state of hepatization. Some small black spots, of an apoplectic appearance, were also seen in the same region. The left lung presented, in its various parts, all of the three stages of pneumonia. Its anterior and inferior portion presented the deep engorgment with blood flowing freely upon incision, and the slight increase of solidity, characteristic of the first stage. Another part was in a state of hepatization; and the remainder presented the softening and purulent infiltration of the tissue of the lung, which characterizes the third stage.* At the upper and back part of this lung, about four inches from the top, was a cavity about an inch in diameter, which was filled with dark venous and fluid blood. On three sides it was surrounded by a dark red, semi-solid substance, and on the other, by the pleura and false membrane only. It was a well marked instance of interstitial apoplexy. Several small spots of the same kind were also seen in the same region. The heart was in a healthy condition.

Abdomen.—No disease of any of its viscera.

Head.—There having been no indications of disease in this cavity it was not examined.

* This is according to Laennec and others. Stokes divides the disease into five stages.

In presenting this case, it is by no means my purpose merely to show the ravages produced by inflammation on the surface and in the substance of the lungs; but to exhibit a somewhat rare instance of inflammation following asphyxia. I suppose that in this case, as is common in asphyxia, an accumulation of blood took place in the whole extent of the circulatory apparatus for venous blood; that from suspended respiratory movements, or from the failure of the unchanged venous blood (the air being excluded) to afford the proper stimulus to the radicles of the pulmonary veins, or from both these causes together, the accumulation commenced in these veins, that it then took place successively in the branches of the pulmonary artery, in the artery itself, the right ventricle, the right auricle, *venæ cavæ*, &c. Under this state of things, the right ventricle would necessarily (the exclusion of air continuing, and death not yet having taken place in the brain from its want of supply of arterial blood) force on its contents into the already distended pulmonary arteries, and the radicles of the pulmonary veins, until there should be produced a very great engorgement, if not absolute rupture, of them. The individual being then removed from the circumstances which brought on this condition of things, and respiration re-established, this engorgement of blood in the lungs would be dissipated slowly, and prove a source of irritation that would cause the development of all the inflammation and its consequences that we have seen. The congestion in this case, as the immediate consequence of asphyxia, was altogether different from that in ordinary inflammation in other parts of the body; and the inflammation was effected in a different manner. When inflammation is setting up in other organs, or in the lungs from other causes, the congestion is in the nutritious vessels of the part; but in this case there was a deep engorgement of the pulmonary arteries and veins, as the immediate consequence of asphyxia, and this, by mechanical distention and consequent irritation, invited a secondary congestion in the ramifications of the bronchial arteries, which last led on to the inflammation and its con-

sequences. As to the mode in which the various consequences of inflammation, which we found, resulted in this particular case, it would of course be superfluous to speak. They all took place in accordance with the well known laws of that morbid action.

It may be asked, did not the individual take cold, and was not the pneumonia produced, as ordinarily, by the impress of that agent? I reply, that two circumstances in the history of the case induce me to think not. First, that the accident occurred at a season of the year when pneumonia is not readily produced in a stout man by such an exposure to cold. Secondly, that he was taken sick *immediately*, which would not have been the case if cold had been the agent in the production of the disease; whereas the congestion of the pulmonary vessels is quite sufficient to account for his immediate indisposition.

May, 1843.

Bibliographical Notices.

ART. VI.—*A Practical Treatise on Venereal Diseases; or Critical and Experimental Researches on Inoculation applied to the Study of those Affections, with a Therapeutical Summary and Special Formulary.* By PH. RICORD, M. D., Surgeon of the Venereal Hospital of Paris, Clinical Professor of Special Pathology, &c. Translated from the French by HENRY PILKINGTON DRUMMOND, M. D. Philadelphia, Lea and Blanchard: 1843. pp. 256.

Few members of the profession, who keep pace with its literature and its improvements, are unacquainted with the name of Ricord, in connexion with venereal diseases. By well directed study, and a series of happy experiments, he has done more perhaps than any living writer towards removing the obscurity that reigned over many important and interesting questions connected with those affections. As the result of his labors, we have a more rational pathology, a more exact diagnosis, and an improved system of therapeutics.

We have here his views presented in an English dress, which cannot fail to prove highly acceptable to the profession. Dr. Drummond has acquitted himself very well as a translator; for we have reason to know that the author's style presented great difficulties. Had he adhered less closely to the original, the translation would have been freer from certain gallicisms and redundancies; but it is clear—and that is sufficient.

C.

ART. VII.—*A Treatise on Diseases of the Eye.* By WILLIAM LAWRENCE, F. R. S., Surgeon Extraordinary to the Queen, Surgeon to St. Bartholomew's Hospital, &c., &c. From the last London edition. *With numerous additions and sixty-seven Illustrations.* By ISAAC HAYS, M. D., Surgeon to Will's Hospital, &c., &c.

This is a very beautiful book, and is, without doubt, the most splendid treatise on the subject in the language. We know of nothing equal to it, and we hope that it will meet with a wide circulation. Affections of the eye are too much neglected by the profession generally; the subject is very inadequately discussed in the majority of our schools, but one or two of which have a chair devoted to ophthalmic medicine and surgery; in all the others it is despatched in about a half-dozen lectures. In the west at least, these diseases are not infrequent—in certain districts, unless we mistake, they are very frequent; and a little more attention devoted to their study, might save the unfortunate from the tender mercies of the stationary or itinerant “eye-doctor,” and from that direst of all calamities, *total and irremediable blindness*.

The following quotation from the very short preface of the American editor, will show what alterations and improvements have been made in the present edition.

“The present, is a reprint from the last London edition, which appeared in 1841, completely revised and greatly enlarged by the author; and to it considerable additions have been made by the Editor.

“Sixty-seven illustrations are introduced, many of them from original drawings, the whole engraved by Mr. R. S. Gilbert.

“Several subjects omitted in the original, are treated of; in supplying which, as well as on other occasions, free use has been made of the valuable Treatise of Mr. McKenzie. The catoptric examination of the eye, and its value as a means of diagnosis; the recent investigations into the structures of the orbit, &c., are all fully considered.”

The reader must not suppose from the modest manner in

which the editor thus speaks of his own labors that they are few or unimportant; they contain, what is of no small value, “the results of his experience in relation to the treatment of most of the important diseases, derived from more than twenty years devotion to the subject, during all which period he has been attached to some public institution for the treatment of Diseases of the Eye.” C.

ART. VIII.—*A Treatise on Ruptures*. By W. LAWRENCE, F. R. S., Surgeon extraordinary to the Queen, &c. From the fifth London edition. Revised, corrected and enlarged. pp. 480, 8vo. Lea and Blanchard; Philadelphia, 1843.

This work is no less excellent than the former by the same author, and, like it, has long since taken rank as one of the very highest authority. Both of them indeed bear the impress of the accomplished and well-stored mind from which they emanate. There is a completeness and a finish about the productions of Mr. Lawrence (conspicuous in both these works) rarely to be seen in those of any other writer. His extent of learning and research—all of ancient and modern medical literature being thoroughly searched for materials—is unequalled; and all thus collected, is compact in that singularly felicitous style, for which he is remarkable. He gives you all that is known on a subject—all that has been said or written about it, not crudely and *undigestedly*, but after having well weighed its merits, his opinion of which he does not hesitate to express. These are the labors that possess true value, and that must endure.

The corrections, revisions and additions, mentioned in the title, were made by the author to the fifth edition published in London. C.

ART. IX.—*Proceedings of the Medical Convention of Ohio, held at Cincinnati on the 16th, 17th, 18th, 19th, and 20th, of May, 1842. With selections from papers read before that body.* Cincinnati, R. P. Brooks, 1842. pp. 51.

We observed in the Journal for April that, of the various papers presented to the Convention, but two were published. The first and longest of these, is entitled "A History of the Topography, Climate and Diseases of the County of Scioto, from its settlement to the present time." In the outset of this paper, the author, Dr. Hempstead, pays a well deserved tribute to the hardy and enterprising men, who led the way in the settlement of the country, and he acknowledges his indebtedness to them for much valuable information regarding the diseases of the early inhabitants. Doubtless much might still be gleaned in this way—as these individuals, otherwise of acute and retentive minds, were oftentimes compelled to be their own physicians.

Dr. H. thus describes the region of country to which his observations refer:

"The county of Scioto is situated upon the southern border of the state, at the confluence of the Scioto and Ohio rivers, and in Lat. $38^{\circ} 38''$ N., and $82^{\circ} 56''$ W., extending North about twenty miles, and including the table land for twenty miles East and West on either side of the Scioto river. The valley proper is based on a bed of shale, which may be seen cropping out a few miles below Portsmouth, and disappears not far from the western line of the county, near the great western limestone deposit. The table land is here elevated from three to five hundred feet above the surface of the valley. It is gently undulating, but as it approaches the Scioto it becomes very precipitous, and, in most places, incapable of cultivation. The tributaries of the Scioto, which arise in this region, are very rapid, highly charged with lime, and subject to great alternations from the most rapid and violent torrents, to the most perfect destitution of all moisture. On the east side of the valley, the surface is not so high by two hundred feet. It also rises less abruptly than on the west. Still, it is undulating, and affords fine grazing and arable farms. The water courses, however, are not so numerous as they are on

the opposite side of the river. Iron, coal, and saliferous rock are found in this locality, which is bounded on the east by the buhr-stone deposit. Out of the valley proper, no ponds or stagnant waters are found, the vegetation is less luxuriant, and of a more durable and ligneous character, than that found in the alluvions immediately bounding the Scioto. Between the low bottoms and the river hills, sandy bluffs occasionally occur, composed principally of coarse gravel and sand, with a very thin vegetable mould, soon exhausted by cultivation, and when the soil becomes impoverished, it is not easily renewed, especially as these bluffs are too high to be benefitted by the spring floods, which annually inundate and enrich the low grounds. Upon these bluffs, elevated from ten to forty feet above the highest floods, are found those monuments of a race long since departed, but still exhibiting, by their works, the strongest proof of having been a populous, an industrious, and a talented people. These evidences of a laborious, intelligent, and, to some extent, a civilized community, are to be found, at short intervals, upon either side of the Ohio and Scioto rivers, occasionally extending into the valley, but occupying ground above all ordinary floods. The soil west of the Scioto is good, containing a portion of sand, and possessing the characteristics of a calcareous deposit. Elevated from four to six hundred feet above the valley, it descends towards the east, exposing the limestone, waverly sandstone, and slaty argillaceous rock, which last underlies the valley proper. From this point the surface rises some three hundred feet, changing its character, and becoming a pure clay. Although more broken by hills, and less suited to agriculture, it is rich in mineral wealth.

“The valley of the Scioto, from two to five miles in width, possesses a soil unsurpassed in fertility and durability by any other; being composed of the debris and washings of the uplands, with a large mixture of decayed vegetable matter deposited by the spring floods which annually inundate it.

“The southern border of this locality, comprising the valley of the Ohio, differs but little from the alluvions of the Scioto; since the low bottoms of the former, which are frequently inundated, possess all the fertility and durability of the latter, while the high or “second bottoms,” which are mostly argillaceous, are less productive, being destitute of that rich arenaceous deposit, which annually renews and ameliorates those less elevated. The table land of the region now under consideration is covered with all the varieties of the oak, except the highest points, which contain groves of pine. The

slopes connecting the bottoms with the upland exhibit a general mixture of western trees, including the locust, pawpaw, sugar tree, &c., while the sycamore, cottonwood, black walnut, mulberry, maple, and elm, occupy the lower portions of the valley. There is not much undergrowth, except in the low valley, which consists of a luxuriant production of annual plants, that are constantly decomposing and enriching the soil upon which they grow.* The Ohio interval produces beech, hickory, and maple, with sycamore and elm on the margin of the stream."

The inhabitants of this region are supplied with water from the Ohio and Scioto rivers, and their tributaries, and from wells and springs, which vary on different sides of the valley.

"On the east side of the valley, fine springs of soft, wholesome, and pleasant water, like that of the Ohio river, above its junction with the Scioto, are found in abundance, free from iron or other minerals. The wells in their vicinity are of the same character, while the springs and wells west partake of the character of the country in which they are situated, being, like the water of the Scioto, strongly impregnated with calcareous matter."

He mentions the following singular circumstance, which we do not remember to have seen noticed elsewhere.

"A singular and interesting circumstance, connected with the ancient works in Portsmouth and its vicinity, affecting some of its wells, deserves here to be mentioned, and may throw some light upon the uses for which at least some of those embankments were constructed. North of the east end of the town, on a sandy elevation of some two hundred feet above the Ohio bottom, the construction of which has much the appearance of being artificial, are found two parallel embankments, which descend to the *sand bluffs* before mentioned, and then pass down to the Ohio bottom, where it is elevated from three to seven feet above the highest known flood. These embankments, continuing on the same elevation, enter the corporation at its east end, and pass through the north part of the town to the Scioto river, where they are

* The writer, some ten or fifteen years since, frequently passed through this undergrowth. When on horseback, he was unable to reach, with a common riding-whip, the top of a growth of vegetation standing so thick over the uncultivated portions of the valley as entirely to exclude the sun.

lost, evidently from the encroachments of that stream, for they again appear some distance below, and terminate on the bank of the Ohio, a short distance above the *present* mouth of the Scioto. Upon, or very near to these embankments, which vary from three feet in height to almost entire obliteration, a number of wells have been sunk to the depth of sixteen feet, furnishing an abundant supply of water, as pure as the mountain rill, being filtered through the fine sand, which is deposited by the Ohio when it overflows its banks. The wells which are located four or five rods north or south of these embankments pass through the natural clay of the bottom, from fifty to sixty feet, before a full supply of water can be obtained. It would seem that two intrenchments had been excavated in the clayey soil at least sixteen feet deep, and then filled with sand. The compact character of the clay confines the water, while the sand supports the clay walls, and permits the water to filter through. Whether this water is conducted from the hills, or collected between the embankments from rains, has not yet been satisfactorily ascertained. In its sensible properties, it is like that of the springs at the foot of the hills, upon which the embankments commence. Half a mile east of the town are some mounds, and an elevation, of the same sand, comprising about two acres, including the embankments. This sandy elevation has a number of springs around its margin, some of which rise to the surface; others are found in three or four feet excavation, a thing unusual on the Ohio bottoms. The writer has a spring in his cellar, from the same source, (although he is located more than thirty rods from the embankment), which rises to within four feet of the surface. It is two feet deep, and occasionally disappears in very extreme dry weather; while the wells, as before stated, never sink more than six feet below the surface, and frequently run over the top."

Mineral and medicinal springs abound.

"Those of the east side of the valley contain salt and iron, petroleum or bituminous oil; and one deposits, for two or three rods from its origin, a substance as white as snow, supposed to be magnesia, but more probably sulphate of lime. The chalybeate springs hold iron in such minute divisions as to be well suited to those cases of excitable debility which frequently occur and are often aggravated by any of the pharmacological forms of this tonic. These springs have been resorted to with much and decided benefit; they are gene-

rally situated in a mountain region, high, healthy, and among the furnaces, where novelty, exercise, and amusement, are not wanting. The springs of the western or limestone region are occasionally charged with sulphur, soda, magnesia, iron, and other salts. On the waters of Brush creek, about four or five miles from the Scioto valley, around the margin of an elevated portion of glady country, a number of medicinal springs are found, containing a variety of salts, and differing somewhat in character from each other. As these are situated in a region unsurpassed for romantic scenery, above miasmatic influence, and possessing the finest hunting and fishing ground in the State, they may, at no distant period, become a desirable resort for health and amusement."

Sulphuret and sulphate of iron are found in great quantity on the west side of the valley near the Ohio. In the summer of 1839, he witnessed an interesting phenomena. "The rocky bed of the creek had been dry for some time and exposed for many days to a temperature above 90°, when a number of explosions occurred from the expansion and eruption of large masses of very pure pyrites, imbedded in the solid rock, leaving excavations indicating the boulder of sulphuret of iron to have been from twelve to eighteen inches in diameter."

That magnificent public work, the Ohio and Erie canal, passes through this county. When it was first projected, fears were entertained that the ponds and pools created by it would exert an unfavorable influence upon the health of the inhabitants; but these fears proved groundless.

"A careful observation for the last nine years in the vicinity of this improvement, has not detected any additional malarious influence, any increase of disease, or any new ailment affecting in any way the health of the inhabitants, excepting during the autumn when the excavation was going forward, at which time it was visited with an unusual amount of disease. This latter circumstance was also peculiarly apparent in 1840 and 1841, upon that part of "the Portsmouth and Columbus turnpike" which runs through the same county, especially where excavations and embankments were progressing during the fall months. In consequence of accidents, or to make repairs, the water of the canal has been repeatedly

drawn off at the most unfavorable season, exposing an extensive slimy and foul surface to the action of an autumnal sun, until all moisture has been dissipated, and yet no deleterious influence has been the result. So far from this being the case, a single incident in 1837 goes to show an opposite effect. The ordinary diseases of the summer had been rather prevalent in the immediate vicinity of the canal, and a considerable number were then sick. On the 8th of September the water was drawn off, and the writer is confident that six new cases did not occur in that vicinity, for the balance of the season."

A portion of this region is subject to inundations from the Ohio and Scioto rivers; these were more frequent from 1795 to 1820, than they have been since. The differences in the diseases of the river bottoms, and of the uplands covered with forests, are striking; the purely miasmatic being confined to the former or inundated portions, while a different class occupies the higher regions.

The following picture of the habitations and manners of the early settlers, is true to the life.

"The residences of the early settlers were, as at the present day, on the banks of the streams, or on the slopes connecting the bottoms with the upland. They were built of logs, and well ventilated, not by windows and doors, but by the interstices between the logs. They were also occasionally washed by rains dashing through the imperfect covering. These walls, with an opening in the roof for smoke, and an earthen or puncheon floor, completed the domiciliary comforts of the early pioneer. Their scanty and thin clothing protected them still less against "the peltings of the pitiless storm," than their open and uncomfortable cabins. It was no uncommon occurrence for an individual to pass the winters of that period, with no other outer garments than the pataloons and hunting shirt, and these of the thinnest fabric of cotton and wool, the bare thoughts of which at the present day would cause a shudder at almost any season. The diet of this hardy race was in keeping with their other comforts. The fruits of the chase, a few vegetables in their season, and coarse cakes, prepared from meal ground upon the invaluable, ever revolving, and never idle *hand-mill*, constituted their whole bill of fare. Their amusements corresponded with

their hardy character. These consisted in aiding a neighbor to husk his corn, to raise a cabin, to roll his logs; or among the females, to quilt a quilt; at which as well as at most other assemblies a bottle of "*Monongahela*" was a universal accompaniment. After the work was done, shooting at a mark, pitching quoits, wrestling, jumping, dancing, and by way of accommodation an occasional game of "rough and tumble," filled up the balance of the day and part of the night."

The climate of this region, like all in this great valley, perhaps we might say all on the western shore of the Atlantic, is subject to great and sudden alterations.

"The changes are very sudden and rapid, not unfrequently varying the temperature forty degrees in twelve hours, and instances have been noticed in which a change of fifty degrees has occurred in eight hours. For want of a series of observations sufficiently extensive no fixed character can, as yet, be given to our climate, although this desideratum will no doubt be soon obtained if the regulations established by the Surgeon General of the army be faithfully and carefully complied with at the several military posts. A sufficiency, however, is known to establish the fact that for some years past our seasons have been changing. Previous to 1820 the winters were not so cold, nor the summer so warm as they have been since that period, and particularly since 1830, which was the first time for some years that the thermometer was below zero. From the settlement of the county in 1795, the winters were mild, with a few days of severe weather, while the summers were cool, with an occasional day of elevated temperature. And although there has been manifestly a change, as will appear by the abstracts accompanying this paper, yet the mean temperature for the year was greater before than since the period mentioned. The mean temperature of the six years preceding 1830 being 55-45, while the six years since were but 54-75. So far as any statistics of the weather can be obtained, the mean temperature of the year, or of the hot or cold months, has not materially differed since the settlement of the county. The same remark will apply to the amount of rain; but the fogs, winds and violent storms, have undergone a very great change. From the first settlement of the county to 1820, the fogs usually commenced early in July, were very regular in their daily appearance, suspended only for a night or two previous to rain. They

generally were observable as early as 9 o'clock, P. M., and frequently continued till the same hour the next morning, and occasionally till 11 o'clock, being throughout very dense and loaded with moisture. It was not unusual to see, during a dense fog, the water fall from the leaves of the trees like a shower of rain. These characteristics of the fogs of that period did not undergo much sensible change until '26 or '27, since which they fall later in the night, frequently not till near day-light in the morning, and are with few exceptions dissipated by 8 o'clock A. M. The amount of moisture has greatly decreased, and it is not unusual for fogs to disappear during the summer and autumn for nights in succession, or to be seen only in the valleys and on the immediate neighboring hills. Their effects, whatever they may be, are not of course observable, upon the higher and more elevated regions. The prevailing winds of the first twenty-five years were westerly. In 1838, an ordinary observer must have discovered that they were decidedly on the decrease. In 1838 the easterly were to the westerly as one to two, in '39 and '40 nearly balanced, and in '41 were decidedly the prevailing wind of the year. The writer is well assured, from the authority of others, and partly from his own observation that from the year 1800 to 1810 no fall of rain was attended by an easterly wind. From that period to 1820 this wind was steadily and gradually on the increase, and from '21 onward has been observable, occasionally throughout each year. For the last twenty years those violent tornadoes, accompanied by thunder, which formerly swept so frequently through our State, have become less frequent and violent, and for the last few years have nearly disappeared. Hail, which attended them particularly in the month of June, is in this region an uncommon occurrence; very few storms of this kind having been observed in the last ten years. Electrical phenomena have also disappeared with the decrease of tornadoes and the increase of easterly winds. The hygrometrical observations have been so few that no comparative estimate can be made of former and latter years; yet a sufficiency is known to make certain one point, that no epidemic meteoation or any considerable prevalence of disease has ever occurred in a dry atmosphere, but are invariably accompanied by one loaded with moisture. Another fact is also developed, that a high hygrometric state of the atmosphere does not depend on the amount of rain, hence the fact that extensive disease has occurred in very wet, dry and medium seasons."

During the prevalence of epidemics, or any unusual amount of sickness, the north winds have been observed to augment the number of cases. This might be attributed to their passage over the miasmatic regions of the valley, if the same effect was not observed in connection with the easterly winds. Dr. H. reconciles this difficulty by supposing that a predisposition to autumnal disease is produced by the westerly winds, which traverse the malarious portion of the valleys of both rivers, and that the winds from the north and east act as exciting causes from other qualities that they possess besides malaria. Assuming malaria to be the cause of the fevers of this region, it is a little singular that its received sources have been steadily diminishing, whilst the diseases attributed to it are far more prevalent. And from facts in his possession, Dr. H. doubts whether the sources of miasm are correctly understood, and urges renewed inquiry.

“To identify this all-pervading influence, to give it a local habitation and a name, are efforts worthy the united energies of the medical community. And how long shall we be content to know it exists only by its effects, and rest satisfied in counteracting those effects, while we are entirely ignorant of the first principles of the cause which produces them? It has been urged, yea settled, that heat, moisture, and dead vegetable matter, will invariably produce this deleterious agent; yet how often do we find the predictions of physicians fail, even when these agents appear to be present, and under the most favorable circumstances for the generation of this aerial poison. At other times, when the temperature, moisture, and vegetable matter, would seem to indicate a state of atmosphere as pure as the mountain breeze, our pleasing anticipations of health and happiness are blasted by the deadly simoom of the autumn, which, like the wind, “bloweth where it listeth, and thou hearest the sound thereof, but canst not tell whence it cometh or whither it goeth;” at one time dealing death and destruction in the high and elevated regions of health, at others sweeping with fearful strides through the lower and more fertile but less salubrious valleys.”

Among the diseases incident to this region, intermittent and remittent fevers of course hold a prominent place. These

are, indeed, the only diseases to which the early settlers were liable; they usually began about the last of June and continued till the last of October, the remainder of the year being healthy. "An epidemic meteoration" has been observed five times—in 1807, '21, '22, '23, and '24. The epidemic of 1807 was very general, embracing the entire valley of the Ohio, and many of its tributaries, and involving nearly the whole population, many of whom died of the disease, or of improper treatment. This disease corresponded to the remittent fever described in the books; it appeared occasionally up to 1820. That of '21 was at first a bilious remittent fever, which after the 1st of August changed to an intermittent, and was more fatal. The epidemic of '22 was a double tertian intermittent, and prevailed generally in town and country. That of '23, was not violent and prevailed mostly in the town. That of 1824, also a double tertian, was entirely confined to the town, and was unusually severe.

Since these epidemics, the diseases of this region have greatly increased in variety, and occur throughout the year save in April and May, which are generally healthy.

Bilious pneumonia was first observed in March 1824, has since recurred every year from December to March, and was epidemic in the winter and spring of '26, '29, '31, '36, '38, '40, '41, and '42. Intermittent cephalalgia is common, at times affecting a large part of the population. Rheumatism both acute and chronic is very rare; from 1816 to 1838, Dr. H. did not see more than ten cases; since the latter period it has increased, and since 1841 has been very common. All the cases were attended by fever of the intermittent type; in many instances it was succeeded by chorea. Dr. H. relied chiefly on the alcoholic tincture of the *actea racemosa*, which he thinks as valuable in chorea and rheumatism, as quinine in intermittents. He likewise uses it in neuralgia, some forms of diseased liver, and in rigidity of the os uteri.

Previous to 1812 cholera infantum was unknown; after the year 1821, it became quite common, and was extremely

fatal; declined after 1830, until 1841, when it was again very fatal.

Of the exanthemata, Dr. H. notices small pox, measles, hooping-cough, scarlet fever and mumps, as having prevailed at different times. These spread much more generally on the uplands than in the valley, where they seemed to lose in a great measure their contagious character. This last is also true of Asiatic cholera, which appeared in '32, and again in '33 and '34.

Croup and quinsy are uncommon—in 26 years not more than ten cases have been witnessed in the Ohio and Scioto valleys. Gangrenopsis is rather frequent, always affects decidedly scrofulous constitutions, occurs in the autumn, and generally at the close of protracted diseases. It owes its origin to the same causes that produce intermittents, and was most prevalent during the epidemic years. Phthisis pulmonalis is rare; an original case has never occurred in this locality, though scrofula in some of its forms is common.

Dr. H's paper closes with abstracts of thermometric observations from 1824 to 1835 inclusive; and of thermometric and barometric observations from 1835 to 1841. These observations were conducted by himself, and are evidently drawn up with great care. But we have already consumed a good deal of space in this notice—more perhaps than some of our readers may think warrantable; if we shall but incite to further observations of the kind, our object will be accomplished. It is only by the accumulation of labors of this sort, that medical histories of extended regions can be known; he who *asks the cui bono*, is not likely to understand it if he were told.

The other paper in these proceedings is on "the causes and treatment of Milksickness," by Dr. Dawson, and was prepared in obedience to a resolution of the Convention at its previous meeting. So much has appeared in the Journal on this subject, that we fear some of our readers feel a degree of nausea at the bare mention of it. We will take this opportu-

nity, however, to express our own disbelief in any such disease. We were brought up in a region where it is believed to be present, where Dr. Seaton and others say it prevails (though the former errs in the geological formation of the country); but we never could satisfy ourselves of it. We have seen what was *called* milksickness; but it was nought else than a form of remittent fever, and was amenable to the same remedies. We have seen all the phenomena of the so called milksickness produced by worms, and cease on their expulsion. We never knew an instance that could be traced to milk, butter or beef—and we doubt very much if one ever was or ever will be. We do not deny that the beef, milk, &c., of sick cattle will produce disease in man, but we do not believe that it produces in certain districts, and no others, milksickness. Even if it did, it is made a much greater bugbear than there is any necessity for. Its prevention is easy, far more than that of most other diseases, and its attacks are not more fatal. Men rush unconcernedly into regions where the very air is thick with the elements of death, but they fly as from some horrid and wide-wasting pestilence the region where milksickness is said to prevail. Our opinion has not been formed lightly or hastily—and we believe, that if it is not now, it will be sooner or later the sentiment of the profession.

The convention was in session five days, and a large amount of business was transacted. Of the various exercises, it would be somewhat late to speak, seeing that twelve moons have passed since it adjourned. It is the less necessary too, from the notice, embracing the more important matters, given by us shortly after the adjournment.

At an early period of the sitting, those who knew the secret sources of action, who could pierce to the under-currents that flowed hither and yon, feared for the harmony of the convention. There were old feuds at work, secret heart-burnings and jealousies, wounded pride, and peradventure wounded feelings. And so new animosities were engendered by the old; factions multiplied; parties were formed; bitter words and keen retorts passed from man to man;

and anger and pride were about to do their work. But a few mild words from one who had borne the toils of some forty summers and winters among that people, whose name is identified with their history, and with that of the profession in the west—words which were as true-hearted as they were few and touching—stilled the rising storm, dispelled as if by magic the ominous and surcharged clouds that were gathering for elemental play around and over-head, and then peace like a dove

——— came forth to spy

What calm had fallen on earth, what light was in the sky!

Explanations were made—a reconciliation took place; old injuries were mutually forgiven and forgotten; hands that erewhile were clenched in passion were now clasped in friendship—what if cheeks lately flushed with anger, were bedewed with tears from eyes all unused to them?—and now the profession in that state presents, so far as we know, an unbroken and undivided front, one in interest, purpose, and feeling. Is it so in any other State in the Union? C.

Selections from American and Foreign Journals.

Presumption of Survivorship.—(Continued from page 352.)

Thirdly. When many persons perish at the same time by drowning.

The following circumstances are to be taken notice of in cases of this kind:

1. Persons, who are able to hold their breath a long time, will die later than those who cannot. Col. Townshend placed himself in the presence of many physicians in a state resembling death. He laid himself upon his back, one physician felt his pulse, another beating of the heart, the third held a mirror before his mouth. Pulsation and beating of the heart ceased instantly, the mirror remained clear, this state continued for half an hour, when the beating of the heart and respiration returned. (*Henke's Zeitschrift*, 4 Jahrgang).

2. Persons who fall head foremost into the water, will die earlier than those who fall in another manner.

3. Persons who remain longer upon the surface of the water, or several times rise up again, will die later than those who sink immediately to the bottom.

Dissection of such drowned persons affords the principal grounds of decision, whether they have lost their lives by apoplexy or suffocation.

Apoplexy causes death sooner than suffocation. But should many persons have died of apoplexy or suffocation, we may certainly assume, that the persons with whom a tendency to apoplexy prevailed, have died sooner than those where this was not the case. With persons inclined to apoplexy, death on falling into the water, particularly if they are heated, occurs instantly." (*Henke's Lehrbuch*, § 473).

But where many persons have died at the same time of suffocation, we may assume, that the persons on whom the signs of suffocation are the most distinct and marked, have died last.

A body, on which the signs of suffocation and apoplexy are found at the same time, has died earlier than one on which we find merely the signs of suffocation.

A lady of noble birth, E. M. v. L. was passing with her three daughters, of 14, 16, and 18 years of age, and her cook in a two horse-coach through the ford at Pradel, which was very much swollen: the king-bolt of the carriage came out and the horses drove on with the fore part of the carriage. The back part sank down, and was carried somewhat forward by the water, whereupon the coachman springs from his seat, in order to assist the persons sitting in the carriage, but which was impossible, as the water in the stream carried the carriage across and overturned it, which he did not let go of, and thought to keep hold of, which however was impossible, because he, at the time when the carriage was turned over, was turned over with it. When the carriage had been turned round some three times, they were all still alive; but when the carriage rose up the fourth time, the three young ladies were already dead, the lady and the cook were still alive, while the first three were fallen down, and did not move, and had also partly fallen out backwards: the cook had still cried out, and the lady said to him, Oh! coachman save yourself only; as he had then at three different times been drawn by the current under the water. When the water had again turned over the carriage, the lady yet cried out and prayed; but after that the coachman had seen no one again, and was himself forced on by the current, until he came to a tree, which he seized.

When now the maternal relations claimed the whole inheritance, to the exclusion of the paternal relations, the latter sought to invalidate the testimony of the coachman, and based themselves upon the presumption of law, that the children might have lived longer than the mother, and if not all, yet at least one had survived the mother. Upon this very doubtful case the following questions were propounded.

a. Whether from all the occurring circumstances, that, what the coachman has testified of the first ensuing death of the three daughters, deserved credit, and that therefore it was to be held probable that the mother survived the daughters.

This question was thus answered: although *ex actis* it does not appear, who had drawn the drowned bodies from the water, how soon it was done, whether any one was near by, and had traced motion, respiration, warmth, or any signs of life, on any of the bodies; also that the fishermen, who were in the neighborhood, or any others had been examined; fur-

ther, the coachman has not explained what he meant by springing from the seat, how, and where he had stood, that he possibly would have held on the wagon, and had perceived what had taken place therein, as he has related it: besides we do not find how old the drowned lady Von L. was, hence we had to investigate the point. But since the answer to the proposed question, first concerns that, what the coachman could perhaps immediately perceive, and judge of according to the circumstances and also to the appearances, but especially to the others, how such things might deceive, and he not be able to know the real death of the three ladies; yet from the legal documents we may believe, that the bodies were drawn out from the water as soon as possible, that no sign of it was observed in either, while an evidence of that kind might have decided the whole question, and it is well remarked, that the coachman, at the time he observed what was taking place with and in the coach, had his head above the water, also from the age of the young ladies, the age of the mother was about 40, more or less.

Hence in reference to the first point of the answer: it is so, that in the anguish and danger of death, wherein the coachman found himself, he could with difficulty observe the course of things, and it is not indeed possible, that he from the falling down, and want of motion, at such a moment could correctly decide, whether the ladies, especially three of them, together with the mother and the cook who were in the coach, were really dead, still from the testimony of the coachman, that the lady had spoken the last, and on the fourth turning of the carriage the daughter had fallen down, and did not move; we hold it probable, that in so far as it can appear from the coachman, it must be, that the three ladies had died before the mother.

But this account of the evidences of death, uncertain and founded only on conjecture, was still further opposed by another question, in which the reasons *pro* and *con* were decisive.

6. Whether, and how far, despite the testimony of the coachman, still the ladies may have lived, when he believed that they were already dead?

a. When then on the side of the maternal relatives in the present case, it was maintained (*a*) that the mother, of a grave disposition, on account of her age, and ever had been so, consequently at the time was well, hence in so sudden a necessity, had more determination and energy than the three young ladies, and could help herself for a longer time, as also the

testimony of the coachman conforms hereto, and strengthens it the more, (b) also that we do not find, as with the bodies drawn out from the water any signs of life remaining was discovered, (c) as also such extraction or drawing forth of bodies of any kind, would have occasioned irritation and motion, if, indeed, with one or the other, any had been left: (d) in addition, the delicate young ladies by excitement would have been brought rather to cramps in the breast and convulsions, and hence death would be hastened, so that the mother survived them, (e) consequently the lying down and want of motion in the young ladies, which the coachman testified to as the signs of death, are also on this account the more sufficient to prove their death, and hence to confirm the testimony of the coachman and the perfect death of the daughters before the mother, therefore the maternal relatives are entitled to maintain the inheritance of the daughters descended to the mother who died last, to the exclusion of the relatives of the father.

b. On the other hand the relatives of the father contended that (a) the vital power at the age of the three ladies was generally able longer to withstand death, than at the age of the mother, as the latter had been affected with hemorrhage and other ailments, and (b) that after the bodies were drawn out, no bleeding, warming or rubbing, &c., was made use of, as these attempts might be useful to restore life or as a possible proof of the death, as (c) the motion of the bodies at the time of the drawing them out from the water and the coach, is in no manner to be compared with the carrying of them, and (d) farther syncope and cramps in the breast in which the three ladies had earlier fallen, so much the less proves death, as it is well known, that, particularly with females, in the like cases, besides that they grow faint and numb, frequently the pulse cannot be felt in the external arteries, as also respiration without a movement of the breast, and only by a slight motion of the diaphragm be discovered, and yet such persons recover, hence (e) we particularly cannot know, whether and how long the young still had life, they might have swam away, and the stream have carried them on more alive than absolutely dead: besides also the lying down and immovableness of the three ladies, which the coachman testifies to, still less, than the outcry of the mother, as they were found in the water, can prove the absolute death of all these persons; the rather (f) that these and many more signs may deceive, although (g) people, who have been a considerable time under the water, indeed often recover, if application is made use of;

as the young ladies were three in number, and on the 3d of September, the water was not so very cold, it is the more evident, that when they were brought to the bank, if not all three, together with the mother, yet one had a spark of life and might have been saved. For these and other reasons, together with the presumption of law, we consider that the testimony of the coachman deserves no credit.

Fourthly. When many persons are precipitated into an abyss and dashed to pieces.

In this case we must particularly examine, on whom wounds of the nobler organs are found. Thus, for example, those will die earlier whose skull is fractured, than those who have suffered the fracture of an arm or leg. Those also will have died the earliest, on whose corpses we find the internal vessels lacerated, than those who have received a flesh (bleeding) wound on the extremities. But where many persons in the same manner, and by the same injury are killed, he will have died the earliest on whom the injury first happened, or also that one on whom the severest lacerations are found. But where the wound is equally great on many persons, or has happened to all on one and the same organ, then the stronger will have survived the weaker. The idiosyncrasy of the person may, however, in the last case, afford a ground of distinction, as when, for example, death is caused by extravasation of blood in the skull, a full-blooded person or one who has a tendency to apoplexia sanguinea, will die sooner than those with whom this is not the case.

Fifthly. When many persons perish at the same time in a conflagration.

In such a case we must first ascertain, whether the persons are really burnt, or suffocated by smoke, or entombed and crushed by the falling buildings.

The distinctive signs of persons dead from suffocation and wounds have already been mentioned.

In respect to death by burning we must decide, whether the man was really burned alive, or whether we find signs upon the dead body, that the marks of burning have been occasioned after death, resulting from some other cause. On this point we have a very interesting essay by Christison.

A case of many persons destroyed by fire, which on account of the claims set up to the inheritance occasioned judicial proceedings, is to be found in Kopp's Jahrbuch der Staatsarzneikunde, 71, 8, p. 181. At Ormay, in the district of Murten in the Canton of Fryburgh, a fire in the night of the 16th and 17th of June, 1809, broke out in the dwelling of a coun-

tryman, Jean Etter. The man was absent, and expected to return the same evening, his wife on that account had remained, according to her custom, waiting for him in the room, where she was found alone with her infant. The other four children slept in a little adjoining chamber. All the five children together with their mother perished in the fire.

It was impossible to discover in what part of the house the fire originated. The body of the mother was found nearly destroyed by the flames. Her infant, with its body almost uninjured, lay under her. A few steps further lay the oldest daughter, 14 years of age. The three other children were found together in the centre of the hall.

There was no marriage contract, and the father remained for a while in the quiet possession of the inheritance of his wife, who had brought to him on the marriage a considerable real estate from her paternal and maternal side, as also some stocks and money.

The provincial law in force there permitted to the surviving husband, the usufruct for life in the property of the wife; but, when he claimed the inheritance, he must present an inventory and give security. According to the laws the property of intestates belonged to the nearest blood relations, who have survived the deceased.

When Etter was about re-marrying, the sister of the deceased claimed, that he should fulfil the requirements of the law, but he refused and the court decided, that the inheritance should be divided: but with this the sister was not content, and her advocate appealed from the provincial law, since, because it was not proved, whether the mother or her children had survived, it must be assumed according to the Roman law and the code Napoleon that the mother was the survivor, and consequently that the sister was the heir of the deceased.

On the other hand, the counsel for Etter contended, on the same authorities, that it was not sufficient, that Marie Knoff for the establishment of her claim, should represent herself as the nearest relative of the deceased, but it rested solely on this, whether she at the time of the death was her next blood-relation, which could not be the case, if only one of the five children had died after the mother. He attempted to prove, how extremely improbable it was, that the mother had survived all the five children, and produced the following striking circumstances.

1. The children, who perished with their mother, were five, and their bodies were found in different parts of the room;

they could not thus all at the same time, in the same moment have lost their lives, as was before assumed, if for example, they had all been entombed under the ruins. Also in reference to their different positions it is almost a certainty, that one or another of the children had lived longer than the rest, and it is the extremest improbability, that all five of the children should have died before the mother, and not even one, were it only for a second, had survived her. As to the survivorship of one of the children we may place five against one.

2. The body of the mother was so much destroyed by the flames, that it excited horror, while that of the child, which she had under her, was scarcely injured. The unhappy mother had used her best endeavors to protect her child, and forgot on that account her own danger. Without doubt she covered it with her body and her dress, it was thus covered from the flames and less exposed to the effect of the smoke, while the mother was entirely exposed to them. We have thus reason to assume the survivorship of the child, in respect to the temporary (*momentanen*) protection derived from the mother.

3. The oldest daughter, about 14 years of age, was found a few steps from her mother, her body was entirely uninjured, so that her hair and the ribbon upon it exhibited not the slightest trace of burning. This proves, that not the flames, but merely suffocation occasioned her death. We must not forget, that she slept in the little adjoining chamber, and that, when she came out, the firesmoke must have already reached her mother, even if the flames had not yet destroyed her. At least the following circumstance gives strong reason to conclude, that she was already dead and had perished by the flames and smoke, when the children left their chamber.

4. Three of these children were found together, in the centre of the hall. They had thus fled from the chamber, come through the common room, had opened that door and thus reached the front door. Could they have opened the front door, they would have been saved. Hence it is in the highest degree probable, that already on their flight the mother was dead, for it is natural, that if she had been still alive, she would also have attempted an escape, and have aided all, to reach the front door.

The decision of the superior court is unknown to the author.

A fire broke out at night in the year 1546 in the Castle Blankenburg on the Hartz, and the count and his pregnant

wife, as well as the steward and his wife could not escape from the flames. They escaped from one chamber to another, until the two females were suffocated by the smoke; the two men remained alive and were at length taken out from the flames. The countess was 37 years old, the age of the other persons is not given.—*S. Thieringen und der Harz. 81 Heft. page 56. Sondenhausen bei Eupel 1840.*

Sixthly. When many persons die at the same time of poisoning.

In the poisonings of many persons by one and the same kind of poison we consider those as dead first, on whose bodies we find the greatest destruction by the poison.

On this point no decision can be based, since indeed the greater the degree of the destruction in the body presupposes a longer life, and there are poisonous substances which produce no destruction in the body, and in corrosive poisons arsenic acts in a twofold manner, as it kills by an effect upon the nervous system, or occasions an inflammation of the stomach and intestines passing into gangrene, to which in the decision of such a case reference must be had. Even in the case, where a person poisons another and afterwards poisons himself, the knowledge of the person of the mixer of the poison is not sufficient to decide the priority of death, since if the poison administered was arsenic, the poisoned person, who first had taken the poison, still may have died last, if the poison produced its effects more slowly upon him, while the poisoner may have died earlier than the former by the more speedy effect of the poison.

Death by poisoning appears to proceed in the reverse order of death by hunger or by bleeding; and the elder to die before the younger.

Persons may die at the same time apparently by poisoning, without this really being the case.

Dr. Roloff relates the case of two men who died suddenly and probably by poison, with whom on dissection no trace of poison could be proved, although the symptoms of disease, as also the appearance on dissection indicated a poisoning, so that Roloff had to leave it undecided, whether the two young people had died of gastritis, enteritis, cholera or malignant typhus. They were two brothers, of whom the eldest was 18 and the youngest 13 years old; the first died Feb. 3, and the last Feb. 21.—*Kopp. Jahrbuch des Staatsarzneikunde, 7 Jahrgang 1814.*

Seventhly. When many persons die at the same time of wounds.

Klose lays down in this case the following principles:

1. With duellists, who die at the same time, the degree of mortality decides for the earlier or later death. 2. If from an examination of the bodies it appears, that the one had been murdered by another, and the murderer had then killed himself: Klose assumes, that the suicide had died last, and cites a recent case, where a man murdered his wife with an axe, but drowned himself. In this case the husband had survived the wife. But on the other hand, had the man thrown the wife in the water and she had died of suffocation, while he had shot himself, the wife may very easily have survived the husband.

3. When in cases of wounds of the same kind the wounded organs of a person are morbid or weak, we may assume, that the persons, who are of the weaker organisation, have died first.

4. If a cannon ball strikes several persons we may assume, that those have died first, who were struck first.

In the siege of Breslau, a soldier was struck by a cannon-ball on the shoulders and was killed on the spot; the same ball crushed the head of another soldier standing several hundred feet distant.—*Klose, System*, p. 395.

With persons of different sexes, but with wounds of the same nature, Klose assumes, that the female will have died earlier than the male. But it is sufficiently known, that bleeding with women is less dangerous and less speedily prejudicial, and we must therefore assume that the man in such a case has died earlier than the woman. Besides, nature stifles in woman bleeding sooner than with men, since the former are inclined to fainting, which is the best means of stopping bleeding.—*Klose, über der Einfluss des Geschlechtsunterschieds*, p. 246.

Eighthly. When many persons die at the same time by cold.

Bernt, Henke and *Mendel* assume apoplexia cerebialis as the only cause of death from cold; but *Niemand* (*Handb. der Staatsarzneikunde*, p. 210,) and *Granland* (*Dissertat. de Asphyxia congelatorum*, Helsingforsiae 1832) place the cause of death in asphyxia. *Metzger* assumes apoplexy as the cause of death; but says that cold with a low but uninterrupted degree of coldness, occasions death by its fatal effects upon the nervous system and the heat of the body; death by cold may be thus sudden or protracted. With these opinions the results of dissection of those who have died from cold coincide. In general, we find in these cases the skin uncommonly pale,

the vessels of the head empty, the intestines very full of blood, and the lungs near the pleura inflamed. Klose, l. c. p. 429. Cappel (*Acta Natur. Curiosorum*, vol. 3, obs. 28,) found congestion in the breast and the abdomen, and Plouquet (*von gewaltsamen Todesarten*) found the vessels of the head and the lungs filled with blood.

The prevalent circumstances, whether a person was stronger, fatter, better clothed than another, whether one had a tendency to apoplexy or fainting or had drunk ardent spirits, must in reference to the appearances on dissection afford an evidence as to the earlier or later death of the one person or the other. Children and old people are killed by cold, more easily than persons in middle age: but women, who are in the climacteric years, are killed by cold under the same circumstances not so easily as men, because they possess proportionally a warmer blood and more animal heat (warmth of body).

Ninthly. When many persons perish at the same time of hunger.

When persons die from hunger at the same time, the place, where it has happened, must first be considered. Thus, death follows later with those who are found in a damp place, a cellar, &c., where they can breathe a moist air or can drink. In reference to sex, women can endure hunger longer than men, who require a greater quantity of more nourishing and stimulating food. Further, weak persons will perish from hunger sooner than stronger ones, younger persons than older ones. Young active men will be destroyed by hunger sooner and more severely, than phlegmatic, quiet, less respirable, old persons, who require less food, than younger ones.

The truth of this position is proved by the melancholy end of Count Ugolino in Pisa, whom the citizens together with his family, closed up and starved in the year 1283, in the Hunger-castle so called. The youngest child, a boy of 3 years old, died first on the fourth day, the three others in youth, the fifth and sixth day, the father in the prime of life, died the eighth day. Dominicus Sala, *Tractat. de alimentis*, sect. 1, p. 32. In Öppido, a maiden lived eleven days under the ruins, and in the most horrible proximity to a corpse. She was 15 years old, and the attendant of a child. On the falling of the house, she held the child firmly in her arms, who, tormented by the most torturing thirst, died on the fifth day. Till then she had preserved her presence of mind, but afterwards she experienced the most painful sensations of hunger and thirst. Her despair passed into perfect senseless-

ness, and at the time she felt nothing of the pain of the dislocation of her hip, on the falling of the house. Drink was the only thing which she desired after her deliverance. When asked respecting her condition under the ruins, she answered: *I slept*. Many of those entombed persons were found on being dug out in a stupor-like sleep, in which they had sunk by the falling or after some days, according as their nervous system was strong or weak; many considered themselves as intoxicated.

An old woman lay seven days under the ruins in a state resembling sleep; when she awoke, her only complaint was of burning thirst.—*Amer. Journ. Med. Scien.*, from *Wildberg's Jahrbuch der Gesamten Staatsarzneikunde*.

A tabular view of the treatment of Uterine Hæmorrhages.—
By William Camps, M. D., Edin.

HÆMORRHAGE BEFORE PARTURITION.

A. *Slight Hæmorrhage*.—Horizontal position; perfect repose; cool air; cool acidulous fluids; low diet; bleeding, if there be symptoms of plethora. The bladder and rectum to be emptied.

B. *Severe Hæmorrhage*.—The same treatment as in A., except the bleeding (1). At first, cold applications; then the ergot of rye, in doses of 12 grains, repeated three times, at intervals of ten minutes. And if these means are insufficient to arrest the hæmorrhage, plug the vagina, or in some especial cases rupture the membranes (2).

HÆMORRHAGE DURING PARTURITION.

Slight Hæmorrhage.

Os uteri not dilated, and not dilatable.

Membranes entire:—The same means as in A., except the bleeding, which is not indicated unless the symptoms of plethora are exceedingly pronounced.

Membranes ruptured:—As above.

Os uteri dilated.

Membranes entire:—The same means as in A.; then wait, or rupture the membranes (3).

Membranes ruptured:—The same means as in A., and

wait; if the pains are feeble or slow, give the ergot of rye (4).

Severe Hæmorrhage.

Os uteri not dilated, and not dilatable.

Membranes entire:—The same treatment as in A., except the bleeding; then the refrigerants, as cold applications. In case these fail, and if the pains are feeble, the ergot of rye; then rupture the membranes. Lastly, if the state of the os uteri will not allow of turning, plug the vagina.

Membranes ruptured:—The same treatment as in A.; refrigerants; ergot of rye if the pains be slow or feeble. In case these fail, compression of the uterus; plug the vagina; introduce the hand, and deliver by turning (5).

Os uteri dilated, or dilatable.

Membranes entire:—Rupture the membranes (6); and if this does not succeed, introduce the hand and turn, or apply the forceps.

Membranes ruptured:—Turning, if the head of the child has not descended into the cavity of the pelvis (7). Apply the forceps if the head of the child have already descended into the cavity of the pelvis. Simple extraction if the child present by breech, knees, or feet.

(1). *The ergot of rye* is employed here as hæmostatic; in the case supposed, there is not, at present, uterine pains; it is not probable that the employment of the ergot of rye should produce them, for hitherto this remedy appears to possess the property of increasing the uterine contractions only when they occur spontaneously, and not that of exciting them, when they do not already exist.

(2). *The plug* will, in the first place, arrest the hæmorrhage; then, by the retention of the blood, and by its presence, it will irritate the *neck* and *orifice* of the uterus, and it will induce the expulsive contractions. These will dilate the *os uteri*, and this dilatation will allow either the rupture of the membranes, or the termination of the accouchment.

(3). This rupture can have no inconvenience; it is a means of preventing the increase of the hæmorrhage. We may always dispense with it, and rest satisfied with waiting until the progress of the labor shall have arrested the hæmorrhage:

the last method is after all perhaps the most prudent. A little *more* or a little *less* tendency to the increase of the hæmorrhage should determine the choice of the one or of the other method.

1st. *Wait*, if the hæmorrhage do not increase in any degree, and still more so if it diminish.

2d. *Rupture the membranes* if there be any tendency to increase of the hæmorrhage; this rupture will be profitably preceded or followed by the administration of some doses of the ergot of rye, if the uterine pains are feeble or slow.

(4). It may be asked, if it would not be proper to terminate the accouchement in this case, since the parts concerned seem disposed to this termination. We think that if the fœtus presents in the usual manner, it is better not to be officious with the application of the *forceps* or *turning*, because the employment of these means would be more severe than the *slight* hæmorrhage which appears to demand their use.

(5). This case is one of great delicacy; the application of the plug here requires great caution; for when the vagina is closed up, the blood may possibly accumulate in the cavity of the uterus, so that the patient may be lost, although no blood make its appearance externally; and the danger will be so much the greater, as the uterus shall have been more developed before the rupture of the membranes, and as the uterine contractions shall be more feeble. The application of the plug should be preferred, to the termination of the accouchement, only when the uterine contractions are sufficiently strong, and when, at the rupture of the membranes, only a very small quantity of the liquor amnii shall escape from the uterus. Again, the application of the plug demands great care of and attention to the patient, and should be followed by the application of a bandage round the abdomen sufficiently tight to resist the enlargement of the uterus. On the contrary, when the uterine contractions are feeble, when a large quantity of the liquor amnii shall have escaped at the moment of the rupture of the membranes, it will be necessary to overcome the resistance offered by the state of the os uteri, and terminate the accouchment by *turning*.

(6). In this case we may be surprised at the advice to *rupture the membranes*, and *wait*, before adopting any other method, according as the retraction of the uterus may have, or may not have, arrested the hæmorrhage; it seems so important, both to the mother and to the infant, that the birth of the latter should be the result of the uterine contractions alone, rather than of manual interference, very often difficult,

that it is very desirable to take the chance of a spontaneous accouchment at all times when there is the probability of obtaining it. It is to be understood that this recommendation to *wait*, is only admissible in case the uterine contractions are neither feeble nor slow.

(7). We may certainly in this case have recourse to the *forceps*, but the employment of this instrument, when the head of the child is above the orifice, and not engaged in the cavity of the pelvis, frequently offers sufficient difficulty to render the delivery by turning preferable.

It will be seen that the indications are based on the slightness or severity of the hæmorrhage, and not on the circumstance of the insertion or non-insertion of the placenta on the neck of the uterus; not that this circumstance is a matter of indifference, for almost always the hæmorrhage produced by the detachment of the placenta inserted over the orifice of the uterus, is one of a severe and serious character, and demands immediately the employment of the means indicated for severe hæmorrhages. Sometimes the insertion of the placenta on the neck of the uterus occasions only a slight hæmorrhage: the author does not consider, then, as do the greater part of accoucheurs, that the insertion of the placenta on the neck of the uterus requires, in every case, the speedy termination of the accouchment, yet it may modify the employment of the means above indicated. For instance, if in a case of severe hæmorrhage the placenta covers entirely the os uteri, we cannot have recourse to the simple rupture of the membranes, as we could if such were not the case. If the os uteri be neither sufficiently *dilated*, or sufficiently *dilatable*, to allow the introduction of the hand, it will be necessary to employ the plug; if, on the contrary, it be sufficiently *dilated*, or sufficiently *dilatable*, it will be necessary to detach one of the sides of the placenta, in order to make a passage into the cavity of the uterus, and deliver by turning; but if a portion only of the placenta be inserted on the os uteri, leaving exposed a part of the membranes, we may proceed as if the placenta were not inserted at the os uteri. In no case does it seem advisable to make a passage through the placenta, as some accoucheurs have recommended. Lastly, if the placenta, pushed by the head or the breech of the fœtus, be entirely, or almost entirely detached, and has passed beyond the orifice of the uterus, we must extract it before the fœtus, for this organ is useless in these circumstances, and its presence in the vagina is an obstacle to the free exercise of the hand, or of instruments.—*Med. Ex. and Retros. of the Med. Sci.*, from *Lond. Med. Gaz.* Jan. 13, 1843.

On Primary Syphilitic Buboës. By DE CASTLENAU.—May a bubo of a truly syphilitic nature arise without antecedent chancre? Many writers on syphilis say *yes*. Many with one of the latest and ablest, Ricord, say *no*. De Castlenau has given the details of three cases, in which there seems to be no reason to doubt of the origin of the buboës, independently of antecedent external chancre. In one of these cases there was the very decisive evidence of the specific nature of the sore which followed the opening of the bubo, in the accidental inoculation of the surface in its neighborhood.

Pell (Marg.), aged 20, a week after connection, was seized with the ordinary symptoms of gonorrhœa, and by and by perceived a swelling in her right groin. The parts were examined with great care; no excoriation or ulceration was discovered either externally or internally; neither were there now any symptoms of gonorrhœa present. In the right groin there was a bubo, superficial, and on the point of giving way; in fact it did give way immediately after the visit. Next day another examination was made, but no chancre was discovered. The open bubo exhibited hard, inflamed, and sharply defined edges; the surface was gray and chancre-like, and suppurating copiously. Above the open sore a small pustule was observed, apparently the consequence of the natural inoculation of the pus poured out by the bubo. The wound was cauterized with nitrate of silver in substance. Two days later the sore had still the same chancrous character. The pustule was now a regularly rounded sore, with raised edges, sharply cut, and rather hard and red; its bottom was gray. A second pustule, like the first, was perceived on the skin to the inside of the principal sore. Three days afterwards this second pustule had become a chancrous sore, with the same characters as the other two. The patient, under appropriate treatment, recovered.—*Lond. and Edin. Med. Journ. Med. Sci.* Feb. 1843, from *Archiv. Gén. de Méd.*, Dec. 1842.

On the Causes and Treatment of Goitre.—A communication was read to the French Academy of Sciences, August 1, from PASCAL, on the local influences which assist in the development of goitre, and on the use of ferruginous mineral waters in preventing and curing this affection. From the observations of Bénédict, Fodéré, and Roulin, it appears, 1st, That the stagnation of humid air, whether cold or warm, eminently predisposes to this disease, and that all the moist gor-

ges of the mountains towards the north are more particularly the localities in which bronchocele exists to the greatest extent. 2d. That the use of impure cold water, as the habitual beverage, is, if we may say so, the exciting cause of the affection in those places already predisposed. The water from wells, cisterns, and pumps, is said to be the most injurious.

Pascal then directed attention to the following fact:—At about three leagues from Metz are three villages, named Pierre Villers, Rombas, and Villers les Rombas, all of which are similarly situated as regards hygiène, with the exception that Villers had a chalybeate spring, which was generally used by the inhabitants for cooking and drinking. Now fifty years ago, while goitre attained a large size, and was very common in the two other villages, it was unknown in Villers; and it was observed, that those who came to reside in it from Pierre Villers and Rombas, got cured if they were already affected with the disease, or if they had it not at the commencement of their residence, continued free from it. From this circumstance we cannot but admit that the chalybeate was the cause of the inhabitants of Villers not being affected with bronchocele. Since the above period goitre has almost entirely disappeared from the other two localities, owing to the improvements that have taken place in the condition of the atmosphere, in the houses of the villages, and in the food of the inhabitants.

From these facts we may conclude, 1st, That notwithstanding the humidity and stagnation of the atmosphere, the use of a chalybeate water prevents the development of goitre, and cures it when it is formed; and, 2d, That even when no ferruginous spring exists, amelioration in hygiène greatly counteracts the predisposition of the inhabitants to be affected with bronchocele.—*Amer. Journ. Med. Scien.*, from *Lond. and Edin. Month. Journ. of Med. Sci.*, Dec. 1842.

Asthenic Amaurosis cured by the use of convex Spectacles.—Taking a hint from certain quack vendors of spectacles, Dr. CUNIER, of Brussels, has made trial of the effects of convex glasses, in what he terms *cases of simple anæsthesia of the retina*, and with a considerable share of success. The influence of the light, directed upon the retina by such glasses, appears beneficially to excite the sunken sensibility of the optic nerve.

A lady, whose case he relates, could not for eight years

without difficulty distinguish with her left eye the large characters forming the title of a newspaper; could not tell the hour on the clock, unless her eye was within two inches of the hands, nor distinguish the feature nor the figure of a person at the distance of two feet. If the right eye was covered, the left pupil became dilated, and remained so.

Glasses, whether concave or convex, ought always to be distinguished by their focal lengths, and not by numbers. As Dr. Cunier employs the latter mode, we are at a loss to know the precise power of No. 3, with which the patient could read a large type with her left eye, but probably it was a convex lens of three inches focus. After exercising the eye with this lens for some minutes, vision became confused and the head painful, so that the patient was obliged to desist. Next day she could with No. $3\frac{1}{2}$, and on the third day with No. 4. The duration of this kind of exercise was gradually lengthened, and glasses of longer and longer focus employed. By the tenth day, the patient read the hour on the clock at the distance of 22 inches, and recognised individuals at double that distance. By the seventeenth day of the treatment, No. 24 was employed, and the patient could read small type. After two months use of No. 24, the sight of the left eye was as good as that of the right.

Several other successful cases are related by Dr. Cunier.—*B. and F. Med. Rev.*, from *Annales d'Oculistique*, May, 1842.

Structure of the Arteries.—After a variety of conflicting and unsatisfactory accounts, Henle seems at length to have discerned such structures in the arteries as are adapted to the functions which experiment shows to be performed by them. His account of the general structure is briefly this:

1st, They have an epithelial lining, consisting of a very thin layer of elliptic or rhombic lameller cells, which are sometimes elongated into longitudinal spindle-shaped fibres.*

2d, There is, immediately external to this, a layer of peculiar tissue, the *striated* or *fenestrated* coat (corresponding to

* Remak and Reichert (Muller, Archiv. 1841, CLXXXVIII), hold, that these are not the innermost cells of the vessels, but that within these, and in actual contact with the blood, there is a layer of flattened, round, and polyhedral cells, with round, yellowish nuclei and nucleoli. On all these observations by Henle, see Reichert's remarks.

the *internal* coat of the older anatomists), consisting of a very thin, rather stiff, and brittle membrane, often perforated by numerous round or oval apertures, and bearing pale, flat, very narrow fibres, which have, for the most part, a longitudinal direction, and give it a peculiar delicately-striated appearance. This coat, which is often morbidly thickened, and when an artery is contracted, is commonly thrown into longitudinal folds, is produced by a metamorphosis of the epithelium, whose cells, as their nuclei disappear, coalesce and form a homogeneous membrane, on which the fibres are afterwards deposited, and which at last, as the apertures in it enlarge, is completely removed, leaving the fibres free.

3d. In some arteries there is, next, a coat formed by a single layer of *longitudinal* granular fibres, flat and tolerably wide, analogous to a coat which is much more prominent in the veins.

4th. A coat composed of *circular fibres* (the *middle* or *elastic* coat of most foreign writers, the *muscular* coat of Hunter), which forms the chief part of the arterial wall, and comprises all that can be torn from it in a transverse direction. Its fibres are flat, clear, and granular, and break with abrupt ends. Each of them is commonly marked along its middle by dots scattered, or regularly arranged in a longitudinal row, or by a narrow streak: these are the remains of elongated nuclei, which have formed, as it were, the pattern, according to which the homogeneous membrane in which they lay has broken up into the flat fibres. The streaks formed of the elongated nuclei often branch and anastomose, so as to form that kind of net work which has led to this coat being mistaken for elastic tissue; whereas it is, in fact, the proper contractile coat of the artery, and is, in all respects of development and microscopic structure, similar to the layers of organic muscle in the stomach, &c.

5th. On its exterior there is a coat of genuine elastic tissue (*tissu jaune*, the *elastic coat* of Hunter): this exists, however, only in the larger arteries; and its thickness, in comparison with that of the preceding, diminishes in direct proportion to the size of the artery. The direction of its fibres varies greatly in different arteries.

6th, The *external cellular coat*, consisting of common cellular tissue, with longitudinal closely-woven filaments.—*Med. Ex.*, from *Lond. Med. Gaz.*

On Fatty Degeneration of the Arteries, with a Note on some other Fatty Degenerations. By GEORGE GULLIVER, F. R. S.—The author, remarking how vaguely the epithets, atheromatous, steatomatous, &c., have been applied by pathological writers to diseased arteries, and that the morbid deposit between the middle and inner coats, and in the substance of the former, has not, as far as he knows, yet been submitted to precise examination, gives the result of his own observations, from which it appears that the disease is really of a fatty nature. A microscopic examination of it brings into view a multitude of crystalline plates, fatty globules, with albuminous and earthy particles. Several specimens of the crystals were sent for examination to Dr. Davy, who ascertained that they are of cholesterine.

The fatty matter is easily extracted by boiling alcohol, and the crystals of cholesterine are seen to be deposited as the solution cools. The author has examined numerous specimens of the disease, and never failed to observe these crystals and the fatty globules in the deposit, and also generally in the substance of the altered middle coat. The microscopic characters are given in two figures.

The accuracy of Dr. Davy's observations (see his "Researches, Phys. and Anat.," vol. I., pp. 372 and 436) as to the thinning, &c., of the middle coat of the artery, is confirmed by Mr. Gulliver.

The importance of fatty degeneration of the coats of the arteries is insisted on, especially as to its general connection with thickening and puckering of the inner membrane, with aneurism, with obstruction, occlusion, or ossification of the vessels, and of those ruptures of them which are so frequently the cause of sudden death.

The author adds, that fatty degenerations are more common and of more importance than has yet been supposed. He mentions obstruction, by fatty particles, of the seminal tubes; and notices fatty degenerations of the blood, lungs, &c. The disease he describes as being more remarkable in "brown consolidation" of the lungs than in red consolidation; and these two diseases are described as affording distinct morbid products.—*Med. Ex.*, from *Provincial Med. Journ.*, March 18, 1843.

Introduction of Air in the Veins.—The "Annales de la Chirurgie Française et Étrangère" contain a communication, by Marchal de Calvi, on the introduction of air into the veins,

in the course of which he offers a new explanation of the cause of death produced thereby. The opinion that it depends on the distension of the heart, by which its contractions are prevented, is, he admits, supported by the experiments of Nysten with the different gases, but he says it does not explain those cases where the death is so frightfully sudden, as if the patient had been struck by lightning, and which resembles the immediate effect of a poisonous dose of prussic acid. In these cases there must be, he thinks, some toxic agent, and then arises the question, what is that agent? Hitherto to this there has not been offered any reply, but Marchal thinks he has found the answer, by discovering the presence of carbonic acid gas in the heart, which he is of opinion is disengaged every time air is introduced into it through the venous system. In this he is supported by the appearance of the blood in the pulmonary cavities of the heart, which, instead of being black, is red, it having been decarbonised by the contact with the atmospheric air, the oxygen of which has combined with its carbon, and formed the carbonic acid gas, to the action of which Marchal refers the death of the patient; and again, if, in performing experiments on this subject, the operator breathe through the tube into the vein, instead of injecting the purer air around him, the fatal effect will be much more rapidly induced, there being carbonic acid gas already generated in the injected fluid. The experiments of Nysten, however, with carbonic acid gas and oxide of carbon do not support this hypothesis.—*Med. Examiner*, from *Provincial Medical Journal*.

Dry Feet.—Capt. John Norton writes thus to the editor of the London Lancet.—After having tried many ways to prevent my boots or shoes from becoming damp by walking the streets in wet weather, I find that a thick varnish, made of shell-lac, dissolved in spirits of wine, and spread, with a brush, on the inside of the shoe, all over the sole, and about half an inch on the upper leather, so as completely to cover the seams, will effectually preserve the feet dry, although the sole of the boot or shoe be less than a quarter of an inch in thickness. This varnish will not soil or adhere to the stocking, even when the feet become heated from much exercise. I have tried this means for some months, and after experien-

cing the good results, make this communication in the hope that the knowledge of it may prove of general benefit.

Effects of Arsenic upon Sheep.—DANGER and FLANDIN, who have performed many experiments with the view of determining the real extent of the poisonous influence manifested by arsenic on wool-covered animals, announce the following as among the latest results obtained by them: A sheep poisoned by a quantity of arsenic inserted under the skin, died in five days. To the last moment it had refused all kinds of food, and the quantity of arsenic in the urine had progressively increased. Another sheep, poisoned by a dose of an ounce of arsenic mixed with a handful of salt (the stomach was probably otherwise empty, though this is not stated), died, as the foregoing, on the fifth day afterwards. It was ill from the moment of having taken the poison, and, like the other sheep, it continued from that time to refuse all nourishment. This last experiment, if performed under the conditions we have above hinted at, would tend strongly to confirm Rognetta's theory that arsenious acid becomes harmless to ruminating animals by being involved in a great quantity of food, and its absorption being thereby hindered. One of the most important deductions drawn by Danger and Flandin from their late experiments is, that the public health is not endangered by the sale of mutton from animals to which arsenic had been some time before administered for the cure of disease: for the presence and continuance of arsenic in the system is readily detected; first, by reason that the animals become ill, however small the quantity of arsenic absorbed; and, secondly, that they have never become well again till the last vestiges of the poison have been eliminated by the kidneys and other excretory organs.

1. The sheep that survived after taking four drachms of arsenious acid, having been killed on the thirty-eighth day after, no part of the carcass was found, on the autopsy, to contain a single appreciable trace of arsenic. A dog to which the viscera were given to eat exhibited not the slightest sign of illness, nor could arsenic be detected on analysis either of its fæces or urine; and six persons who partook of the muscular fibre as food lived on it for twelve days without feeling any inconvenience or symptom distinguishing it from meat of other descriptions. 2. The dog that ate the viscera of three

poisoned sheep did not experience fatal results, and when killed on the ninth day from the reception of this food, exhibited a healthy internal appearance, without any trace of arsenic whatever, the entire poison having passed off in the urine during the six days immediately following the introduction of the poison into the system. The comparative harmlessness of the poison on the dog, as compared with the sheep, may be accounted for from the far smaller extent (about one-fifth) of the intestinal canal, as well as the much greater muscularity of the tissues connected with the digestive organs of the carnivorous animals: these causes render the digestion, absorption, and the secretions generally much more active in the dog than the sheep.—*Lond. Lancet*, from *Gazette des Hôpitaux*.

Employment of Muriate of Ammonia in Scirrhus of the Stomach.—The above salt having been administered by German practitioners with decided benefit in cases of induration and degenerescence of the bladder, prostate gland, &c., Trusen was induced to employ it in the following instances:

CASE 1.—A man, thirty years of age, accustomed to a sedentary life, and the too great use of alcoholic liquors and strongly spiced aliments, had evidently contracted a scirrhus disease of the pyloric extremity of the stomach. For some months, vomiting, with violent heartburn, &c., had always come on from three to four hours after taking food. Ordered, ammon. hydrochl. fifteen grains, every two hours, combined with extract of liquorice. In a short time digestion was performed better, and the appetite restored. Care and abstemiousness in diet were enjoined, and at the end of a six months' persistence in the use of the medicine, the vomitings ceased entirely. A clogged state of the stomach, from superabundance of mucus and habitual constipation, were removed by a six weeks visit to the muriated-chalybeate springs of Cudova, and the man subsequently regained perfect health.

CASE 2.—A man of age, and sedentary habits, similar to the foregoing, had been for some time affected with arthritis, &c., on the removal of which he began to be subject to an invariable rejection of the whole of his food a few hours after it had been taken, accompanied by atrophy and emaciation. He entered, however, upon the use of muriate of ammonia in drachm doses (!) which he continued for seven months,

when his vomitings had wholly and permanently disappeared.

The system of the patient soon adapted itself without inconvenience to the above large doses of the remedy, which were taken in infusion of ginger.—*Lond. Lancet*, from *Hufeland's Journal* and *Gaz. des Hôpitaux*.

The Physicians of Dantzic Sixty Years Since.—These reverend gentlemen enjoyed the title of excellency, and not only in their own houses and from their own servants, but in society generally; only very intimate friends could sometimes venture on a respectful ‘Herr Doctor.’ Their head was covered with a snow-white, powdered, full-bottomed periwig, with three tails, one of which hung down the back, while the others floated on the shoulders. A scarlet coat embroidered with gold, very broad lace ruffles and frill, white or black silk stockings, knee and shoe buckles of sparkling stones, or silver gilt, and a little, flat, three cocked hat under the arm, completed the toilette of these excellencies. Add to this a pretty large cane, with a gold head, or mermaid carved in ivory, upon which, in difficult cases, to rest the chin—and certainly every one will admit the impossibility of so much as thinking of an innovation in their presence.—*Lond. Lancet*, from *Edin. Review*, Feb. 1842.

Improved Treatment of Hydrocele.—It need scarcely be recalled to mind that in the operation for hydrocele, after the serum has been discharged through the canula of the trocar, it is usual to inject an irritating fluid in order to induce an adhesive inflammation in the parietes of the tunica vaginalis. The inflammation somewhat subsides after about the fifth day; but a month commonly elapses before the whole quantity of the injected fluid is absorbed and a cure effected. On this somewhat tedious course of practice Lisfranc has made the following improvement:—On the sixth day after the use of a vinous injection, he makes a second puncture, for the purpose of emptying the tunica vaginalis of all the accumulated liquid, thus sparing nature the task of its absorption; and by these means he alleges that a cure can be completed in less than half the time occupied by the usual method.—*Lond. Lancet*, from *Bulletin de Thérapeutique*.

Spermatozoa Observed a Second Time within the Ovum.—[By Martin Barry, M.D., F.R.SS. L. & E.]—Several months since I communicated to the Royal Society the fact that I had observed, and shown to Professor Owen and others, spermatozoa *within* the mammiferous ovum. The ova were those of the rabbit, taken twenty-four hours *post coitum* from the Fallopian tube.

I have this day (March 31) confirmed the observation; several ova from the Fallopian tube of another of these animals, in a somewhat earlier stage, having presented spermatozoa in their interior, *i. e.* (as the first observation) within the thick transparent membrane ("*zona pellucida*") brought with the ovum from the ovary.—*London Lancet.*

A Colony of Seven Hundred Lunatics.—At the late sitting of the French Academy of Sciences a paper on Insanity was read by its author, Moreau, one of the physicians present. The chief object of this pamphlet is to recommend the adoption in France, as regards pauper lunatics, of the plan resorted to in Belgium.

Moreau states that in the village of Gheel, in that country, there is a colony of not less than seven hundred lunatics, who are treated upon so admirable a system that they are perfectly harmless, and live and labor with the same inhabitants, whose habits they acquire, and to which they become quite so attached that when cured they are frequently unwilling to quit the place. These lunatics are made useful in agriculture and manufactures, and consequently their cost is small as compared with that of ordinary lunatic asylums. The origin of this colony dates so far back as the sixth century, and is another verification of the old adage that there is nothing new under the sun! The mode of treating the lunatics at Hanwell, near London, was considered, when first put in practice, as a novelty, and yet it is nothing but Gheel practice imperfectly carried out. It is only surprising that this improved mode of treatment should have been deferred so long in England; and it is now evident that it is capable of great extension in its application. Within the last few years only, in that country, medical men have ascertained the possibility of so classing and occupying lunatics as to render even the most violent of them comparatively tranquil, and thus facilitating the curative process. For chains, whips, and other means of

coercion, kindness and intelligence on the part of the keepers have been substituted, not only at Hanwell, but also at the Bethlehem Asylum.

Researches on the Blood.—A late treatise by Andral, Gavarret, and Delafond, on the condition of the blood in animals in health and in disease, contains the following statements: The quantity of fibrin normally present in the blood differs greatly in different animals, and holds no strict relation to energy of constitution. The quantity of fibrin is very small in the blood of animals examined within a day after their birth. During the latter period of gestation the fibrin of the blood diminishes to below its normal amount; but immediately after parturition and during the early period of lactation the blood contains its largest proportion of fibrin, and puerperal diseases are apt to occur correlatively with its amount. The blood-globules exist proportionally in greater quantity in the blood of carnivorous, and in least quantity in that of herbivorous animals. The greater proportion of globules in the blood is correlative with greater constitutional vigour in individuals of the same species; and improved breeds of sheep are distinguished by an increase in the number of these globules. During gestation, after parturition, and within a day after birth, the globules are diminished or increased correlatively with the fibrin. The serum of the blood is in smallest proportional amount in carnivorous animals, and most abundant in the herbivora. It accrues considerably during the occurrence of pot-belly (*cachexia aqueuse*) in sheep, conjointly with a notable decrease of the fibrin and globules. Dropsy only supervenes as a consequence of an alteration in the blood, when this fluid is divested of a certain quantity of its albumen. The diminution of the blood-globules alone is not sufficient to produce it; hence dropsy is not attendant on chlorosis. But it exists in man when albuminous urine is excreted, and in sheep when the parasite *fasciola hepatica* is found in the liver, a circumstance which is often attended by pot-belly and anemia.—*Lond. Lancet*, from *Gaz. des Hop.*

Vaccine lymph from the pustules produced by Tartarized Antimony.—In concluding the interesting and important subject of vaccination, and the consideration of the de-

fences against small-pox, I may mention a singular statement made by Dr. Lichtenstein, and published in Hufeland's Journal for 1841. The paper in which this statement occurs is entitled, "On the Sources from which Matter preservative against the Small-pox has been derived," and the author asserts that limpid lymph taken from the pustules produced by tartarised antimony and inoculated in a person who has not been vaccinated, occasions a pock that cannot be distinguished from vaccinia. These pocks, he states, are equally protective against small-pox, and the lymph may be transmitted from person to person in the same manner with cow-pox. Dr. Lichtenstein inoculated and reinoculated thirty-one persons from this source, and none of these persons took the small-pox, although they mingled freely with the infected during the epidemic prevalence of small-pox.—*Wilson's Lectures in Lond. Lancet.*

Renal disease Simulating Calculus in the Bladder.—SEGALAS reports that he was called to attend on a child, from four to five years of age, which often placed its hands on the genitals, and experienced frequent desire to pass urine, which action, however, was always performed with pain. The urine was tolerably abundant, and yielded a muco-purulent deposit. The acuteness of the various symptoms had been considerably increased during some recent attacks of roseola and bronchitis. These symptoms apparently indicated the presence of a calculus in the bladder; Segalas, however, doubted that one really existed, having never met with this disease in any children but those of parents in a much lower sphere of life than those of this patient; and a careful examination proved that no urinary calculus in reality existed. Some time afterwards the child died of a cerebral affection, and the body was opened. The bladder, as well as the urethra, was found perfectly healthy and free from urinary deposit; but the left ureter was much dilated, and the pelvis of the corresponding kidney three or four times larger than that of the opposite side. The calices also were enlarged, and the cortical substance of the kidney was inflamed at several points. The right kidney was healthy.—*Lond. Lancet*, from *Gaz. des Hôp.*, Jan. 7.

Electro-Puncture.—SCHUSTER has lately addressed a paper to the French Academy of Sciences, to prove that electricity

is little serviceable in medicine unless it be applied through the means of acupuncture needles. Administered in this way, he asserts it may be employed with success against dropsies of all kinds, steatomatous and other tumours, engorgements and indurations (and perhaps cancer,) goitre, varicose dilatations, chronic rheumatism, paralysis, amaurosis, and perhaps aneurism. Electro-puncture acts, he says, by directly stimulating the sensibility, contractility, and absorbent function; in the formation of internal eschars, and the detraction, piece by piece, of diseased growths; in decomposing the fluid contents of tumours; in procuring external openings for matter, provoking adhesive inflammations, &c.; though some of these effects seem capable of production by the needles alone without the electricity.—*Lond. Lancet.*

The Rage for Invention.—Velpeau and Blandin have both deprecated the present mania for the invention of new surgical instruments in France, as if surgery were not already overladen with mechanical contrivance. Velpeau attributes this mania, which prevails mostly among young surgeons, to the ignorance of these youths as to what has been done before them; and he judiciously observes, that “it would be much better for them to study the capacities of the surgical instruments that at present exist than to invent others of which there is no need.”—*London Lancet.*

THE WESTERN JOURNAL.

Vol. VII.—No. VI.

LOUISVILLE, JUNE 1, 1843.

TRAVELLING EDITORIALS.

We are frequently asked, whether the Western Journal is to be the vehicle of publication for the information we are collecting on the diseases of the West and South. To this we reply, that it is not; except when we can obtain manuscript communications, fitted by their authors for the press. Our design is to arrange and condense the whole into a separate work—a treatise—a book of home materials and home manufacture, intended for home consumption, and which, although it may be a homely production, will not be without its value to those for whom it is designed—the physicians of the country to which it relates, provided they communicate their observations freely, and have made them accurately.

Congestive Fever.

Since leaving the salubrious white sands of Pensacola Bay, whence we made our last communication, we have wandered among the tributaries of the Mobile—the great river of South Alabama, which is intersected with more navigable streams than any region we have visited. We have ascended the Alabama river four hundred

miles, to its origin in the confluence of the Tallapoosa and Coosa; traversed those rapid and beautiful tributaries, and peeped into their cypress swamps and drowned lands; crossed the pine table lands which separate them from each other, and from the Tuscaloosa and Tombeckbee, with the broad and annually inundated alluvions of those navigable rivers; dipped into the eastern edge of the State of Mississippi; and snuffed up the exhalations of swamps, *sloughs*, *slashes*, hammocks, ponds, lagoons and lagging streams, in sufficient numbers to supply malaria for a continent, and raise a smile of complacent satisfaction on the lip of every advocate of the malarious origin of congestive fever; a disease which prevails, with some inequality, throughout all parts of the region in which we have spent the last month. In their history of the symptoms of this celebrated fever, the physicians, with whom we have conversed, have displayed a remarkable degree of coincidence; but their treatment, although in the main substantially the same, has been somewhat variant. One fact is unquestionable, that its mortality is chiefly referable to its not being treated at an *early* period. It is then, like epidemic cholera, a manageable disease. Time is its great ally, and delay renders it incurable. This fact is perfectly understood by the people, and still they too often postpone a resort to the profession; the reason of which is, perhaps, that, in its onset, it very generally assumes the mask of a harmless intermittent.

Pneumonia.

As the fever of last autumn subsided, a dangerous pneumonia arose, and has not yet entirely ceased. Its greatest prevalence was in the latter part of winter, and in early spring. On the whole, it has been as fatal as the fever which preceded it, and its treatment still more diversified and doubtful. In addition to the mortality it has already effected, it has laid the foundation of much *chronic* pulmonary disease, if we may judge from the fact that we have casually met with several patients, whose lungs were more or less hepaticized. Pneumonia is a more constant winter disease in these latitudes, than is generally supposed; but it has not before been so frequent and fatal; which should no doubt be ascribed to the extraordinary coldness of the past winter and spring.

Doctors, Calomel Doctors, and Botanical Doctors.

These are the varieties into which the people of "these parts"

have divided, and the terms by which they designate, the men to whom they look for relief.

We are happy to observe that the first are far the most numerous; and although not to a great extent educated in our *young* Medical Institute, but in the schools of Charleston, Philadelphia, and Lexington, have many substantial claims to professional respectability; and would have still more, if they planted less cotton. We may, however, write with a partial pen, for their hospitality has every where been so great, that its acceptance has left us little time to look into their defects. Of calomel doctors we have seen but few, and those few have lost so much of the true physiognomy of the *caste*, as scarcely to be recognized. But our readers may ask, who, or what is meant in Alabama by a calomel doctor? We reply, he is, or rather *was*, a regularly educated physician, who assumed that calomel was the *only* remedy for malignant autumnal fever, and would certainly cure, if administered to the extent of a couple of ounces a day. Some of their patients occasionally had a pound *avoirdupois* in their stomachs at one time. But we do not propose to go into details, for the practice now sleeps with its victims; and many who once pursued it with unrelenting energy, at present unite with their brethren in its reprobation. A similar account may be given of drastic purging. A gentleman assured us that he had, under the direction of a physician, weighed out and administered to a fever patient, 1700 grains of calomel, and 2400 grains of aloes; and a physician informed us that he had given to a patient of the same class, 600 grains of a compound of equal parts of calomel, rhubarb and aloes, for six successive days. At present, as little calomel is prescribed in this country as in any part of the union, and perhaps less cathartic medicine. The ill success of the calomel and aloes doctors, brought into favor the botanical or steam doctors, whose methods were certainly preferable. Thus it is that eccentricity favors the growth of empiricism. Of the practice of these patentees, it is not our purpose to speak; but we cannot refrain from expressing regret, that any members of the medical profession should so far forget themselves as to hold consultation with men who are not educated to it, and who misrepresent and traduce it among the people, while they draw from its magazines all the means they employ, and use them in a perfectly arbitrary manner. Nor can we approve of the disuse of an old remedy by regular physi-

cians, because it has been thus purloined and prostituted by reckless and unprincipled pretenders.

Electro-Magnetism.

In Tuscaloosa we were asked to look at a small electro-magnetic machine which an ingenious citizen of that place, Dr. Nelson Walkly, had constructed, and was applying to the cure of diseases. Dr. Walkly was an inquisitive and scientific mechanic, who turned his attention to medicine, which he studied for the purpose of making a systematic trial of electro-magnetism in the treatment of diseases. Within the last twelve or eighteen months, he has used it in chorea, epilepsy, neuralgia, palsy, chronic rheumatism, deafness, torpor of the liver with constipation, amenorrhœa, dysmenorrhœa, and several other complaints. Of his success and his failure, he gave us a detailed account, apparently with great candour; and we feel it a duty to say that he seems to have effected a cure, or afforded palliation, in several cases of those very intractable affections. It must certainly be admitted, that the profession has not yet made a full and fair trial of this agent, and we take great pleasure in commending Dr. Walkly's enterprise to the patronage of the physicians, and of the community in general, through this country.

Dipping.

The toilet-vocabulary of this country, has become enriched with the new and elegant word "dipping." A lady or a miss chews the end of a stick until she converts it into a kind of brush or fibrous mop, which she then proceeds to dip into snuff, with which she rubs her teeth and gums. At first she presses the powdered weed with a gentle hand, but becoming enamoured, at last touches so deeply as to consume a bottle of snuff in a week. Whole families and whole schools of girls are said, with a small number of cleanly exceptions, to be given to this method of titillating their nervous systems; and many, by the time they are full grown, have become so thoroughly impregnated with the powder, that their apparel might hang in a hot room the whole summer, without being touched by the moths. We know of but two advantages from this habit. 1st. It may render them insensible to the breath of the other sex, who begin the use of tobacco with the study of grammar. 2d. It can be made a substitute for whiskey (now falling into discredit) by those who are in affliction. Thus we were told by a gentleman, that he lately saw a

mother seated at the bed side of her expiring son, with an open dish of snuff on the table among his medicines, into which she plunged her "dipper" as often as she sighed; and when the tears of grief rolled down her cheeks, they mingled with streams of snuff-colored saliva from the corners of her mouth. It seems hard-hearted to condemn a custom fraught with such comforts, but we are compelled to say that it is not without many opposing effects. In our inquiries into the diseases of the sex in the south, we have already collected satisfactory evidence, that "dipping" is the cause of some and an aggravation of many more. We might refer to its effect on their breath, complexion, and cleanliness, but this we shall leave in the hands of the gentlemen who are immediately interested.

Harmony in the Medical Profession.

Our present pursuits afford us considerable insight into the state of the profession, and reveal, among other things, the social concord and discord of its members, in the same town or neighborhood. We are happy to say, that, with very few exceptions, we have found our brethren, in this quarter, rather more harmonious than we have ever seen them in any other part of the union. This does not arise from boyhood associations, in a common native land, for the communities of Mississippi and Alabama are really new; and their physicians are emigrants from several states, chiefly Georgia, the Carolinas, Virginia, Tennessee, and Kentucky. It therefore speaks well of them as men. Nor is it the fear of being challenged, keeping them in formal courtesy; for duelling is almost unknown and unthought of among them. On the contrary, we are disposed to ascribe much of it to an influence which equally condemns discord and duelling—that of christianity, under which we have found a great number of the most respectable and influential physicians. It is delightful to contrast this, with the infidelity, intemperance, and profanity, which prevailed thirty years ago. *Esto perpetua.*

University of Alabama.—Geological Survey.—Medical Topography.

No class of men have a deeper interest in Universities for classical and scientific elementary education, than physicians; for the profession can never attain its proper elevation among the callings of society, till those who study are well established in all preparatory branches of learning; which, at the present time, is far from being the case.

While in Tuscaloosa, we made a visit to the University, which is seated a mile in the country, and were introduced to its respectable Faculty. Professor Brumby, to whom is confided chemistry, mineralogy and geology, took us to his laboratory which is amply supplied with apparatus, and then to the library and cabinet. The former embraces three thousand four hundred and seventy-eight volumes, of which about one hundred and thirty relate to the natural sciences, while more than five hundred are arranged under the head of religion, although there is no professorship of theology in the University. It is a fair presumption that but few of these books are read by the students, and the proportion which they bear to the works on natural history, the natural sciences, anatomy, physiology, and medicine, is by far too great; especially when we consider that Professor Brumby, with a laudable zeal, attempts to teach more of these branches than are included in the title of his professorship, and is diligently engaged in adding to the cabinet, all sorts of mineralogical and zoological specimens. The Professor has also, with others, exerted himself on the Legislature to have a geological survey of the State undertaken, but as yet without success. Whenever it shall be accomplished, Alabama will be found second to no State in the Union, in the interest she will raise in the mind of the fossil zoologist, the botanist, the mineralogist, and the political economist. The southern half of the State is entirely tertiary, and abounds in the clays, sands, marls, and organic remains of that series of formations; then comes an extensive coal group, and after that, in the centre and more northern part, a tract of older rocks, highly metalliferous, where iron and gold—the most useful and the most precious of metals—have been already found in abundance. The flora of Alabama is equally rich and diversified with its geology, and comprehends, in great abundance, a variety of plants, useful in medicine and the arts, which might be made articles of exportation. Specimens of all its geological formations, with their organic remains and imbedded minerals; its plants and its animals, including those of its sea-shore; with analyses of its mineral waters, ought to be collected, and systematically arranged and preserved, in its State University. In the prosecution of this important enterprise, its medical topography would come to be understood, and means of improving the salubrity of unhealthy localities suggested. Were the University thus enriched, its ample endowment of \$18,000 *per annum*, would enable the

trustees to render it one of the most respectable institutions of learning and science in the Union; instead of dragging on with seventy-nine pupils, the present number. The sons of Alabama would then flock to it, and become enamoured with science, devoted to the study of their native land, and think of other and nobler things, in connexion with their native plains and hills and vallies, than mules and cotton.

Hernando de Soto.—First Alabama Surgery.

Travelling for the last month in the very region where De Soto, more than three hundred years ago, performed his wildest wanderings, we may be excused for referring to them. Entering the basin of Mobile river from the N. E., he struck the Tallapoosa, high up, and descended that river to the present Tallassee. Coming down upon the Alabama river, he fought the famous and ill-fated battle of Manvilla, about the junction of that river with the Tombeckbee, as some antiquaries conjecture, but obviously much higher up; whence he turned northwardly, and crossing the Tuscaloosa and Tombeckbee, proceeded towards the Mississippi river, in which he was finally buried. After the bloody battle of Manvilla, there were seventeen hundred wounds to be dressed. All the medicines and surgical *appareil* were burnt up; there was but one surgeon in the army, and he was inactive and inefficient. In this extremity, they made ointments of the fat of the dead Indians that lay around them; tore up their shirts for bandages; and enveloped the wounded limbs in their doublets; supporting the sick on broth made from the flesh of the slaughtered horses. Such was the first surgery on the banks of the beautiful Alabama, whose waters, after having long since washed away every vestige of Spaniard and Manvillian, continue to flow on, as pellucid as if they had never been dyed in blood.

Greensboro', Ala., May 20, 1842.

D.

NEW WORK ON SOUTHERN DISEASES.

It gives us pleasure to learn that our correspondent, DR. DOWLER, of New Orleans, has quite ready for the press, a work on the diseases of the South, referring chiefly to fevers, bowel complaints, &c. From what we know of Dr. Dowler, we anticipate a production of much value, and shall look for its appearance with a good deal of interest.

C.

ARMY MEDICAL BOARD.

A Board for the examination of such assistant surgeons as may be ordered to appear before it, and such applicants for appointment in the medical staff of the army as may be invited to attend, will convene in the city of New York on the first of July. The Board will consist of Surgeons Thomas G. Mower, Henry A. Stinnecke, Charles S. Tripler, and Assistant Surgeon, J. B. Wright, as supernumerary and recorder. C.

ST. LOUIS HOSPITAL REPORTS.—ST. LOUIS MEDICAL AND SURGICAL JOURNAL.

When our first article went to press, we hoped and believed that it was but the first of a series from the pen of Dr. Linton. Since that time, however, we have received the first and second numbers of the *St. Louis Medical and Surgical Journal*, edited by Dr. Linton. Of course his pen will hereafter be devoted to the enriching of the columns of his own Journal. The latter is a monthly of sixteen octavo pages, good paper, fair type—our only regret at its appearance is its depriving us of an old and valued correspondent. C.

MEDICAL JOURNAL IN HAVANA.

Our readers may not all know that the profession in the island of Cuba has an organ, through which its members communicate with each other and with their brethren abroad. We have recently received, in exchange, the "*Repertorio Medico-Habanero*," published, as its name imports, at Havana, in the Spanish language. "The "*Repertorio*" is a semi-monthly, of sixteen large octavo pages, double columns; Dr. Gutierrez is the chief editor, or "Director," assisted by Drs. Miranda, Lanuza, Costales, and Chamorro. A large part of its contents is original, and it seems to be conducted with considerable spirit. In one of the numbers received by us, we observe a very flattering notice of Professor Gross' "*Elements of Pathological Anatomy*." C.

INDEX TO VOL. VII.

A		C.	
Abnormal nutrition,	376	Calculus of the bladder simulat-	467
Abolition of a rule in medical graduation,	68	Calomel and botanical doctors,	470
Abscess in the walls of the uterus,	307	Cæsarean operation on a dwarf,	340
Air, introduction of, into the veins,	460	Caries of the teeth, cause of,	297
Alabama, University of,	473	Cases and observations, miscella-	
Alabama, first surgery of,	475	neous,	332
Amputation at the shoulder-joint,	405	Cases of tardy fecundity,	408
Amaurosis, asthenic, cured by con-		Cathartics in retention of the pla-	
vex spectacles,	457	centa,	345
Ammonia in scirrhus of the stom-	463	Causes and treatment of goitre,	456
ach,		Chancres, treated by sulphate of	
Ammonia in hemicrania,	227	copper and cyanuret of mercu-	
Analysis of the menstrual fluid,	59	ry,	385
Anatomical injections, new process		Charity Hospital, New Orleans, re-	
for,	295	port of,	159
Aneurism, false, variety of,	283	Chigoe or Gigger,	301
Animalculæ, revivification of,	59	Children, new-born, signs of ma-	
Animals and man, sleep of,	233	turity in,	61
Anonymous pamphleteers,	319	Churchill on diseases of females,	281
Antidote for corrosive sublimate,	230	Climate, &c., of Central Arkan-	
Arkansas, medical topography of,	321	sas,	321
Army medical board,	476	Climate of New Orleans,	240
Arsenic, effects of, on sheep,	462	Climate of the United States, by	
Arteries, fatty degeneration of,	460	Forry,	142
Arteries, structure of,	458	Colic from lead, prevention of,	297
Artificial anus,	316	Colony of lunatics,	465
Assault on the temperance reform,	398	Congestive fever,	412, 469
Asphyxia producing pneumonia,	422	Congenital small-pox,	391
B		Consequences of introduction of	
Ballard's case of pericarditis,	329	glass into the body,	286
Bars on steamboats,	238	Consumption in man and animals,	381
Barton, Dr., removal of, to cuba,	313	Contusions of muscles,	302
Bayless on pneumonia,	422	Convention, Medical, of Ohio,	315, 429
Bay of Pensacola,	393	Communication of pulmonary veins	
Bed and banks of the Mississippi,	237	and air vesicles,	371
Bed-sores, nitrate of silver in,	386	Cornea, peculiar affection of in	
Bites of snakes,	65	nurses,	61
Blind, school for,	77	Corpora lutea,	60
Blood, researches on,	466	Correspondents, notice to,	79
Botanical doctors in the south,	470	Corrosive sublimate in erysipelas,	72
Buboes, primary,	456	Corrosive subliminate, new antidote	
Bursa, patellar, operation for,	229	for,	230

- | | | | |
|--|----------|---|------------|
| Crooked nose cured by subcutaneous division of cartilages, | 231 | Forts at Pensacola, | 394 |
| Cubebs, cases of poisoning from, | 357 | G | |
| D | | Galvanic forceps, | 292 |
| Deafness cured by the endermic use of morphia, | 54 | Geological survey of Alabama, | 473 |
| Death of Tiger-Tail, | 315 | Gigger or Chigoe, | 301 |
| Death from diseased ear, | 288 | Glanders in man, cure of, | 388 |
| Deposits of tubercular matter in the bronchial glands, | 380 | Glass in the body, consequences of, | 286 |
| Diagrams, surgical, | 158 | Goitre, causes and treatment of, | 456 |
| Digestion, researches on, | 365 | Goulding on the medical topography of Central Arkansas, | 321 |
| Dipping, | 472 | Graduation, medical, abolition of a rule in, | 68 |
| Discovery of the true cause of Milksickness, | 73 | Gross on the nature and treatment of wounds of the intestines, 1, 81, 161 | |
| Diseases, climate, &c., of Little Rock, | 321 | H | |
| Diseases of females, by Churchill, | 281 | Harmony in the medical profession at the south, | 473 |
| Diseases and temperature of 1842, | 64 | Havana Medical Repertory, | 476 |
| Diseases of the throat in public speakers, | 66 | Hay's Lawrence on the eye, | 427 |
| Diseases, western, | 236 | Hemicrania, muriate of ammonia in, | 227 |
| Diseases of the eye, by Lawrence, | 427 | Hemp, Indian, | 386 |
| Doctors, calomel doctors, and botanical doctors. | 470 | Hemorrhagic diathesis, treatment of, | 53 |
| Dowler on post-mortem researches, | 241 | Hernando de Soto, | 475 |
| Dropsy of the os uteri, | 392 | Hospital at Pensacola, | 394 |
| Drummond's Ricord on venereal diseases, | 426 | Hospital liquors, waste of, | 398 |
| Dry feet, | 461 | Hospital reports, St. Louis, | 401, 476 |
| E | | Hydrophobia, idiopathic, | 227 |
| Effects of arsenic upon sheep, | 462 | Hydrocele, improved treatment of, | 464 |
| Electro-magnetism, | 472 | I | |
| Electro-magnetism in a case of poisoning, | 357 | Idiopathic hydrophobia, | 227 |
| Electro-puncture. | 467 | Indian hemp, | 386 |
| Encephalo-spinal meningitis, | 290 | India-rubber life-preservers, | 239 |
| Endermic use of morphia in deafness, | 54 | Infants, nursery treatment of, | 293 |
| Engorgement of the uterus, | 225 | Injectons, anatomical, new process for, | 295 |
| Enlarged patellar bursa, operation for, | 229 | Intestines, memoir on wounds of, | 1, 81, 161 |
| Existence of lymphatics in pseudo-membranes, | 384 | Introduction of air into the veins, | 460 |
| Explosions of steamboats, | 240 | Invalids, winter resort for, at Mammoth Cave, | 78 |
| Extraordinary case of pericarditis, | 329 | Invalids, winter and spring visits of, to New Orleans, | 314 |
| F | | Invention, rage for, | 468 |
| Falconer's Cæsarean operation, | 340 | Iodide of potassium in atonic ulcers, | 299 |
| False aneurism, variety of, | 283 | Iron, protosulphuret of, new antidote for corrosive sublimate, | 230 |
| Fatty degeneration of the arteries, | 460 | Itch, treatment of, at Berlin, | 231 |
| Fecundity, tardy, cases of, | 408 | L | |
| Feet, how to keep dry, | 461 | Lancet, New York, | 320 |
| Females, Churchill on diseases of, | 281 | Latent insanity, | 311 |
| Fever, congestive, | 412, 469 | Lawrence on the eye, | 427 |
| Fluid, menstrual, analysis of, | 59 | Lawrence on ruptures, | 428 |
| Forceps, galvanic, | 292 | Life-preservers, | 239 |
| Forry on the climate of the United States, | 142 | Lithotomy on a man seventy-eight years of age, | 78 |
| | | Litton and Schnederman, on a new double salt, | 154 |

- Little Rock, Goulding on climate and diseases of, 321
 Local treatment of chancres by sulphate of copper and cyanuret of mercury, 385
 Louisiana, Medical College of, 314
 Louisville Medical Institute, 316
 Lunatics, colony of, 465
 Luxation of the patella on its axis, 375
 Lymphatics in false membranes, 384

M

 Mammoth Cave, winter resort for invalids, 78
 Materia Medica, Paine's therapeutical arrangement of, 237
 Maturity in new-born children, signs of, 61
 Medical College of Louisiana, 314
 Medical Convention of Ohio, 315
 Medical convention of Ohio, proceedings of, 429
 Medical graduation, abolition of a rule in, 68
 Medical resignation, 320
 Medical topography of La Plata, 299
 Medical topography of Central Arkansas, 321
 Medical board of the army, 476
 Medical and Surgical Journal in St. Louis, 476
 Medical Journal in Havana, 476
 Medical topography of Alabama, 473
 Meningitis, 290
 Menstrual fluid, analysis of, 59
 Mercury, cyanuret of, in chancres, 385
 Meteorology, 63
 Meum and Teum, 317
 Microscopic animalculæ, revivification of, 59
 Milksickness, northern limits of, 65
 Milksickness, true cause of, 73
 Miscellaneous cases and observations, 332
 Miscellaneous notices, 80
 Mississippi river, bed and banks of, 237
 Mississippi river, winter temperature of, 240, 314
 Muriate of ammonia in scirrhus of the stomach, 463
 Muscles, contusions of, 302
 Muscles, syphilitic retraction of, 296

N

 Naval hospital at Pensacola, 394
 Navy ration, 397
 Navy surgeons, 395
 Navy yard at Pensacola, 394
 New Orleans, climate of, 240
 New process for anatomical injections, 295
 New remedy for scalds and burns, 58
 New work on southern diseases, 476
 Nitrate of silver in bed sores, 386
 Northern limits of milksickness, 65
 Notices, miscellaneous, 80
 Nursery treatment of infants, 293
 Nutrition, abnormal, commonly called inflammation, 376

O

 Objections to Liebig's theory of the uses of respiration and food, 51
 Ohio medical convention, 315
 Operation for enlarged patellar bursa, 229
 Operation, Cæsarean, on a dwarf, 340
 Os uteri, dropsy of, 392
 Ovum, spermatozoa observed in, 465

P

 Paine's materia medica, 237
 Pallen on congestive fever, 412
 Pamphleteers, anonymous, 319
 Patellar bursa, operation for, 229
 Patella, luxation of, 375
 Percussion, 54
 Pericarditis, Ballard's case of, 329
 Phloridine, 52
 Physicians of Dantzic sixty years since, 464
 Pneumonia in the winter of 1841, 1842, 65
 Pneumonia, the pure antimonial cure of, 368
 Pneumonia produced by asphyxia, 422
 Poisoning by snails, 357
 Poisoning, case of, treated by electro-magnetism, 357
 Population getting shorter, 306
 Post-mortem researches, 241
 Potassium, iodide of, in atonic ulcers, 299
 Presumption of survivorship, 352, 442
 Prevention of lead colic, 297
 Primary syphilitic buboes, 459
 Process for anatomical injections, 295
 Proceedings of the medical convention of Ohio, 429
 Professional correspondents, notice to, 79
 Progress of temperance, 79
 Proto-sulphuret of iron, new antidote for corrosive sublimate, 230
 Pseudo-membranes, lymphatics in, 384
 Public speaking, 312
 Public speakers, throat-diseases of, 66
 Pulmonary veins and air vesicles, communication of, 371
 Pulmonary consumption in man and animals, 381

Q

 Quadrupeds of North America, 318

- Quinine in typhus, 386
 Quinine in intermittent and remittent fevers, 390
 Quinia, salts of, 286
 R
 Rage for invention, 468
 Reform, temperance, assault on, 398
 Remedy for scalds and burns, 58
 Removal of Dr. Barton to Cuba, 313
 Renal disease simulating vesical calculus, 467
 Report on the New Orleans Charity Hospital, 159
 Reports of the St. Louis Hospital, 402
 Researches on digestion, 365
 Researches, post-mortem, by Dowler, 241
 Researches on the blood, 466
 Retention of placenta, cathartics as a remedy for, 345
 Retraction of muscles after syphilis, 296
 Revivification of microscopic animalculæ, 59
 Ricord on venereal diseases, 426
 Robertson on caries of the teeth, 297
 S
 Salts of quinia, 286
 Saturated solution of corrosive sublimate in erysipelas, 72
 Sawyer's miscellaneous cases and observations, 332
 Scalds and burns, new remedy for, 58
 School for the blind, 77
 Scirrhus of the stomach, muriate of ammonia in, 463
 Sheep, effects of arsenic on, 462
 Shoulder-joint, amputation of arm at, 405
 Signs of maturity in new-born children, 61
 Sleep of animals and man, 233
 Snake-bites, 65
 Southern diseases, new work on, 475
 Spectacles, convex, in amaurosis, 457
 Spermatozoa observed in the ovum, 465
 Spinal marrow, tubercular disease of, 310
 Steamboat bars, 238
 Steamboat explosions, 240
 Structure of the arteries, 458
 Submarine thermometer, 285
 Sulphite of the protoxide of platinum and sulphite of soda, a new double salt, 154
 Surgeons in the Navy, 395
 Surgical diagrams, 158
 Survivorship, presumption of, 352, 442
 Syphilitic retraction of muscles, 296
 Syphilitic buboes, primary, 456
 System of anatomy, by Wistar, 282
 T
 Tellkampf's case of amputation, 405
 Temperance, progress of, 79
 Temperance reform, assault on, 398
 Temperature of the Mississippi in winter, 240, 314
 Temperature and diseases of the year 1842, 64
 Teeth, Robertson on caries of, 297
 Tertiary formations, 238
 Thermometer, submarine, 285
 Therapeutical arrangement of the materia medica, 237
 Throat disease of public speakers, 66
 Tiger-Tail, death of, 315
 Todd on cathartics in retained placenta, 345
 Topography of Central Arkansas, 321
 Topography of La Plata, 299
 Travelling editorials, 235, 313, 393, 469
 Treatment of uterine hemorrhages, tabular view of, 452
 Treatment of hemorrhagic diathesis, 53
 Treatment of infants in the nursery, 293
 Treatment of itch at Berlin, 231
 Treatment of nasal enlargement, 234
 Treatment of pneumonia at Guy's Hospital, 368
 Tubercular deposits in bronchial glands, 380
 Tuberculous disease of spinal marrow, 310
 Typhus, value of quinine in, 386
 U
 University of Alabama, 473
 Use of cathartics in retained placenta, 345
 Uterine hemorrhage, treatment of, 452
 Uterus, engorgement of, 225
 Uterus, dropsy of the mouth of, 392
 Uterus, abscess in the walls of, 307
 V
 Vaccine lymph from the pustules produced by tartarized antimony, 466
 Value of quinine in typhus, 386
 Value of quinine in intermittent and remittent fevers, 390
 Variety of false aneurism, 283
 Veins, introduction of air into, 460
 Venereal diseases, by Ricord, 426
 Virey's objections to Liebig's theory of respiration, 51
 W
 Waste of hospital liquors, 398
 West, diseases of, 236
 Western meteorology, 63
 Willoughby University of Lake Erie, 68
 Winter and spring visits of invalids to New Orleans, 314
 Winter temperature of the Mississippi, 240, 314
 Wounds of the intestines, memoir on the nature and treatment of, 1, 81, 161

